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## Alleviating Railway Manpower Shortage

**R**ADICAL measures to alleviate the railway manpower situation are under consideration by the Railway Executive and the three railway unions; some details of these are given elsewhere in this issue. With present trends in industry, the most drastic measure proposed is probably the voluntary extension for certain operating grades of the working week from 44 to 48 hr., and the voluntary forgoing (but with considerable compensation) of one of the two weeks' annual paid holiday. This does not mean—even if it is put into practice—any abandonment of the 44-hr. principle, or that of the paid holiday. Nevertheless, this may be a beginning of recognition that rigid adherence to a 44-hr. week is not practical in the present state of labour shortage, which shows no sign of abatement. The adoption of the 44-hr. week in 1947 is estimated to have involved the necessity for an additional labour force on the main-line railways of more than 33,000 in conciliation grades alone. As to the recruitment of Italians, there is a precedent for this in the coal industry, where employment of aliens probably presents even more difficulties than on the railways. The language difficulty presumably will be overcome in time, though it must be a formidable one even for permanent-way work and even more so in signals engineering. Nor can the importation of labour be anything but a relatively long-term measure. Although proposals for increasing working hours do not apply to

footplate men, the Associated Society of Locomotive Engineers & Firemen is opposed in principle and considers that deferment of military service should first be granted. This the Government seems disinclined to concede, on grounds of equity in relation to other industries. The other railway unions are not against the proposals in principle, though they are not unnaturally making their point that the railway labour shortage is due in part to the attractiveness of other occupations, for which (they maintain) higher railway wages are the remedy. There is also some unfounded suspicion of possible reversion to the unacceptable working conditions of pre-war days. Against this, the increase in lodging allowances and a large amount of overtime payments in prospect for many railwaymen must be attractive.

## Mr. Deakin's Advice

**T**HERE was sound sense and moderation in the advice given by Mr. Arthur Deakin, General Secretary of the Transport & General Workers' Union, to his union conference last week. He is against the "closed shop" principle, as it is a "totalitarian idea," and might lead to the trade union movement becoming a growth on the State and its organisation dependent on the goodwill of the employer. He roundly condemned unofficial strikes. Nationalisation of other industries in the near future he ruled out as politically—and otherwise—inexpedient. As to industries actually nationalised, whilst he is in favour of re-examination of their financial structure and of compensation with a view to the practicability of conversion of compensation, Mr. Deakin emphasised the injustice of expropriation, and the high proportion of working people who had invested their savings in these industries. Of the control of nationalised industries by the workers, he said that too few applied for the executive posts that came their way; and many young people were unwilling to work to fit themselves for executive positions. The B.T.C., Mr. Deakin points out, has led the way in providing joint consultative machinery, though the response to such measures by too many workers, who have not risen to their new responsibilities, is disappointing.

## Nationalised Steel

**A** FORTNIGHT ago we referred briefly to a dispute which had arisen between the Government and the privately-owned firms of the British Iron & Steel Federation; this took the form of an attempt by the State Iron & Steel Corporation to take over the ore-buying activities of the Federation. The two organisations have now come to an agreement—though some critics consider it an armed truce. The Federation will continue to carry on the common services for all firms of the industry, including ore purchase, but it will recognise the "ultimate responsibility" of the Corporation. There is provision in the agreement against duplication of function. This means that the present situation will continue until, perhaps, the issue is decided by the next general election. Meanwhile, lip-service is paid to nationalisation. What matters in present circumstances is that nothing shall hinder the supply of steel for essential purposes, including export orders.

## N.U.R. Withdrawal from Ireland

**T**HE decision last week by the National Union of Railwaymen to withdraw from both Northern Ireland and the Republic at the end of 1952 is the logical outcome of the decision in 1946 to review the matter five years from then, and does not seem to have been caused by any new development. No similar movement towards autonomy in Ireland is apparent in the other two railway unions, the Associated Society of Locomotive Engineers & Firemen and the Transport Salaried Staffs' Association, with their comparatively small Irish membership. In the N.U.R. it was felt generally that the time had come for withdrawal from both territories, where economic (and, in the Republic, political) conditions differ so much from those in Great Britain. The delegates from both North and South have

expressed appreciation of the way in which the N.U.R. has handled the problem, and relations remain friendly between British and Irish members. The latter have a considerable time to wait before final severance, and presumably before the establishment of an autonomous Irish railway union, to which the N.U.R. is believed to be considering a contribution of funds. The union, though founded some years earlier, did not function in Ireland until early in this century. The N.U.R. is the largest of the railway unions; its Irish membership of some 7,500 is small in relation to total membership of 400,000 in the British Isles.

### Transport in the Irish Republic

THE statement on transport in the Republic of Ireland made last week by Mr. Sean Lemass, Minister for Industry & Commerce, makes depressing reading. The loss on working for the current year for Coras Iompair Eireann may be £2,300,000, the highest deficit yet recorded, and a high figure for nationalised transport in so small a State. The Board of C.I.E., in submitting this estimate, has proposed raising passenger fares by 12 per cent. and freight rates by 16½ per cent. for both road and rail services, but even this could only reduce the deficit to £1,000,000; as an alternative, restrictions on road transport are envisaged. As regards the Great Northern Railway, Mr. Lemass could only say the divergence of opinion between the Governments of the Republic and Northern Ireland continued, notably on its purchase and on whether, and to what extent, the G.N.R. can be bisected and either half absorbed into the State transport organisation (C.I.E. or U.T.A.) of the territory concerned; talks between the Ministers concerned are to be resumed later this month. The rumour of purchase of the G.N.R. by "British Railways"—(presumably the British Transport Commission is meant)—seems to be as unfounded as it is unlikely.

### British Transport Commission Statistics

THE total staff of the Commission at the end of the fifth statistical period (to May 20) was, at 888,121, less than 2 per cent. below the total for Period 5 of 1950. Total British Railways staff was some 20,000 (3 per cent.) down: there were in operating grades decreases of 1,900 (20 per cent.) in inspectors and foremen, of 4,600 (5 per cent.) in drivers, firemen, and motormen, and of 3,700 (3 per cent.) in porters, ticket collectors and so on, though the number of running shed (operating) staff fell comparatively slightly, and that of C. & W. cleaners rose slightly; in maintenance grades, civil engineering conciliation staff fell by 2,400 (4·5 per cent.). The British Railways passenger traffic figures given are those for March, as the monthly basis of these statistics allows no later figures to be given; comparison with 1950 is in any case vitiated by the incidence of Easter. London Transport total passenger journeys for Period 5 decreased by 1·3 per cent. compared with 1950, and railway journeys 1·2 per cent., though bus journeys rose by 5 per cent.

### Education in General Railway Problems

THE inauguration by the Railway Executive last week of a series of courses in general railway problems, each for some 30 students drawn from a variety of grades, is something of a new departure. The courses, of which there are to be four, each of two weeks' duration, are being held at Dillington House, Ilminster, a residential centre for further education established by the Somerset Education Committee. They are designed to give an understanding of some of the problems facing the railways and to arouse the interest and gain the co-operation of railwaymen in dealing with them; they are not "staff courses" in the accepted sense of that term, and differ from those, for instance, held at the former L.M.S.R. School of Transport at Derby. Students are selected in the various Districts; those attending the first course include a clerk, a motive power foreman, a signalman, a carpenter, a coach-finisher, and a detective,

from different Regions of British Railways. The syllabus covers transport organisation and integration; public relations; staff matters; and general subjects such as report writing, plans and diagrams, and costs and charges.

### The Largest Unreinforced Concrete Railway Arch

THE Lison-Lamballe section of the French National Railways crosses the valley of the Rance 3½ miles north-east of Dinan on a viaduct having a central span of about 275 ft. Before 1944, this span consisted of a double-line steel truss superstructure. It was then destroyed by the retreating Germans, though the arched approach spans were undamaged. As the line is single and the piers were found to be sound and founded on rock, it was decided to rebuild the main span as a single-line unreinforced mass concrete open-spandrel arch, with the springings built into the bases of the piers. It has a rise of 76 ft. 6 in., and in the open spandrels are six semi-circular secondary arches. The two halves of the timber centring were erected as curved towers resting on temporary reinforced concrete supports at the bases of the piers, and the halves were then lowered across the gap to meet and be fixed rigidly in the centre thus forming a two-hinged arch. During the pouring of the concrete in three rings, Coyne stress recorders were built into different parts of the arch to enable actual stresses to be compared with those assumed in the design. This span, claimed to be the longest unreinforced concrete railway arch, was completed in June, 1950.

### Improving Freight Traffic Working

RAILWAY new works programmes have to conform to the requirements of national policy because of the present severe limitation of capital investment, and, as the Railway Executive points out, emphasis with schemes already in hand is largely on those which will benefit freight traffic. There are at present no less than 150 large schemes in progress on British Railways for the better working of this traffic. Some schemes have been authorised recently and will be carried through as soon as labour and materials conditions allow. These schemes include the construction of a railway seven miles long to meet the transport needs of colliery development in Nottinghamshire and a series of facilities to assist the development of the Fife coalfield. Included also are schemes for the modernisation of seven goods stations and warehouses. While these developments will help British Railways to meet the growing industrial demand, especially in connection with the rearmament programme, progress is being made as well in the restoration of many passenger stations, and in the modernisation of signalling equipment on important sections of line. These improvements, some examples of which are given in other pages this week, will help to overtake the still serious arrears of railway reconstruction and maintenance arising from the war.

### A Serious Block Working Irregularity

THE accident at Wortley West Junction on December 2, 1950, was the result of a very serious irregularity in block working. It was inquired into by Brigadier C. A. Langley, who had dealt with the collision at Whitehouse West Junction, near Preston, on May 13, 1950, and which was due to what he was compelled to call gross negligence in the signal box. His report on the Wortley West accident is summarised in this issue. He has again found it necessary to refer to the lack of a sense of responsibility revealed in recent months, and says that "unless the right type of man is attracted to the service and the discipline and morale of signalmen as a whole maintained at the standard which has been expected in the past, more expenditure on safety equipment will be needed to prevent inevitable failures of the human element." At Wortley a train was sent on from the signal box in rear without any block signals being exchanged for it, although such were entered in the train register at that box. An exchange of such signals later, which the

Wortley signalman thought were given to regularise the position for the first train, were held to apply by the other man to the following train, and this was sent on irregularly into the occupied section.

### Practical Results at s'Hertogenbosch

**A**S stated in an illustrated article in our issue of March 2, 1951, the Netherlands Railways put into operation on September 4, 1950, an "NX" type all-electric power interlocking installation at s'Hertogenbosch, the first of its kind on the Continent, incorporating a new system of speed signalling aspects devised by the Chief Signal Engineer, Mr. J. H. Verstegen. After eight months of working Mr. Verstegen is able to state that he is entirely satisfied with the installation and that the traffic staff also finds it satisfactory. Centralising the working of the station has greatly speeded up movements, and the advantages derived from the general use of track circuiting and sectional route locking are being markedly felt, although of course these are obtainable with any system of power signalling. Another improvement obtained is the much better control over short movements compared with earlier methods used in Holland. The speed signalling aspects have proved to be readily understood by the trainmen. The only difficulty has been the type of track circuit insulation adopted.

### Problems in Narrow-Gauge Engine Design

**E**LSEWHERE in this issue appears an illustrated article by Mr. Geo. W. McArd which deals with some of the problems which occur in the design of locomotives for the smaller gauges. While the designer is concerned with producing a locomotive having the highest steam producing capacity permitted by weight and dimensions, he is also concerned with the design of the locomotive from the maintenance point of view, a combination of circumstances which considerably increases the difficulties of the designer. Power demand is often to the limit available with the axle loading allowed, and to attain this, wheel diameters on metre-gauge and narrow-gauge engines are restricted as far as possible. In consequence, road clearance is restricted, with its attendant disadvantages of close proximity of the running gear to the track, overhead springing, and so on. Some examples of locomotive designs are given for the 2-ft., 2-ft. 6-in., metre, and 3-ft. 6-in. gauges.

### Reactions to B.T.C. Report

**I**F the forthright presentation by the British Transport Commission, in its report for 1950, of the case for a more speedy and flexible method of adjusting charges and for greater capital outlay, was intended to bring home the seriousness of the situation, the reception of the report shows that it was successful in this at least. Comment on the increases in charges in relation to rises in costs ignores the arguments stated both in the report and in the statements made last April by Lord Hurcomb, Chairman of the B.T.C., when the 1951 passenger charges scheme was announced. Regarding the more challenging complaints (compared with previous years) of the Commission of the disabilities under which it labours, *The Times* suggests that they be heard with respect "so long as they do not serve as an excuse for avoidable inefficiencies." Whilst it sympathises with the Commission's desire for more effective control over its own charges, it points out that "the elaborate safeguards of transport users are not to be lightly abandoned." It urges the Commission to display an aggressive attitude towards internal inefficiencies (but does not say precisely in what these consist) and to overcome the opposition of its employees to economies which affect them. The Commission's case for authority for greater capital expenditure is viewed with sympathy. Despite this, the public has "on the face of it, not a little to criticise in the transport system as it is"; and there must be vigilance with so great and powerful a monopoly. *The Times* adds that "it is widely felt that the Commission is top-heavy and over-centralised," and that it is far from achieving the compensating advantages of integration.

*The Daily Telegraph* praises the lucidity and candour of the report, and is generally sympathetic. It does not try to go deeply into the figures presented. As to capital outlay, it says that the B.T.C. "must take its place in the queue for new capital," but cannot be blamed for shortcomings outside its control. Some doubt is felt as to the efforts made to effect economies since nationalisation. The City Editor of *The Daily Telegraph* asks when the B.T.C. will need to raise fresh capital, and infers that this will be almost certainly early next year, quoting the figures in the report showing how far liquid assets have been reduced.

*The Manchester Guardian* criticises the Commission's demand for greater freedom in adjustment of charges. "To the Commission" it states "... it may seem ... common sense that the easiest and quickest way of showing a brighter balance sheet is to be given letters of marque to put its hands in the travelling public's pocket. It is not exactly what the public expected of nationalisation." The B.T.C., it continues, is out of sympathy with the public; "the root of the matter is in public confidence." The Commission is blamed for "petulance about the way in which people exercise their legal rights" with reference to remarks in the 1950 report on opposition to proposals for reorganisation, and so on. *The Manchester Guardian* also considers inadequate the present degree of Parliamentary control over nationalised transport.

*The Financial Times* thinks the explanations given in the report of the present state of affairs, convincing. It accepts the necessity for greater capital investment; in view of the present enforced "patching" of plant, it suggests that the Railway Executive has not been given enough credit for the economies in operation which it has achieved. The case for flexibility in adjustment of charges has weight; but there are misgivings as to over-centralisation. The demand for railway freight services is "less elastic than many of the Commission's critics believed"; increased freight charges can be absorbed because they operate partly to reduce income tax (as they mean increased costs), whereas passengers have to find their costs out of taxed income. *The Financial Times* advocates study of means of reducing costs per passenger-mile, rather than raising passenger fares or curtailing services so as to increase net revenue.

The City Editor of the *News Chronicle* considers the report pessimistic, quoting the words "stagnate or even decay" used in the report of the consequences of continued restriction on capital outlay on the railways. There is a reference to "our top-heavy, over-centralised transport set-up."

*The Scotsman* describes the report as "a rude shock. It would seem that State transport is heading for a crisis." There is little sympathy for the B.T.C. in its difficulties, and it is suggested that it has no real confidence in itself.

*The Spectator* remarks that "the tone of (the Commission's) complaint must be sharpened to offset the deficit." As regards powers to adjust charges, "consumers in any healthy economy will always resist price rises, if only to ensure that the producers make every possible effort to increase efficiency ... before they ask more for their product." The B.T.C. must not be allowed lightly to "pass on its costs" to the public. Full inquiry into railway charges is necessary, "because there is no subject ... more bedevilled by unsound arguments, and there is a standing need not for less investigation into ... nationalised industries but for more."

*The Economist* says (of the freight charges scheme) that "reading between the lines of the report suggests that the need for a general reserve ... will be an important element in the application for new freight rates. It has yet to be seen whether the public will allow the nationalised industries to build up reserves." The Commission must first prove its efficiency. As to rising costs, "it is not the fault of the (Transport) Tribunal—any more than it is the fault of the Commission—that the persistent fall in the value of money makes its procedures so financially embarrassing for the Commission." There must be adequate safeguards for the public interest. As to the B.T.C. contention that charges should be recast in the light of the fact that it has no monopoly of many traffics, *The Economist* stresses the



importance of those monopolies (such as mineral traffic, which goes by rail and is cheap to work) which the B.T.C. does enjoy, and deprecates such recasting in these cases. There is criticism of B.T.C. organisation and methods, the latter illustrated in the handling of the railway wage claim last winter and of the recent traffic crisis involving postponement of the summer passenger services.

There is little that is new in the generality of adverse comment on the report. Certain opinions, as on over-centralisation—the B.T.C. headquarters staff numbers some 250, the total staff nearly 900,000—are given without further amplification. Nor, for instance, is it said how decentralisation is compatible with even continuation of the present degree of Parliamentary control. The relative insignificance of the deficit in relation to the total turnover is ignored. Apart from the efforts already made to improve services and achieve economies, it still remains necessary to bring home to the public a full realisation of the true position of transport in this country. The candour of the report for 1950 should go some way in this direction.

### Some Railway Shortcomings

ELSEWHERE in this issue we publish a letter entitled "Some Railway Shortcomings" which, for obvious reasons, has to appear anonymously. In general this journal, in common with most others, does not view favourably, or encourage the publication of, letters criticising the administration of railways unless the writer is willing to append his name. The author of the letter in question, however, is a responsible railway officer and clearly it would be unreasonable to expect him to disclose his identity in the present instance. One reason for the publication of his letter is the knowledge that many of the points he makes are matters of common discussion among railwaymen at the present time. It is no service to British Railways to attempt to close one's eyes to the sense of grievance and frustration which undoubtedly exists among a section of the staff. How large that section may be must be a matter for conjecture, but that the letter we have printed represents a point of view that is held by at least a number of responsible serving railwaymen cannot be questioned.

To many of the points which are made by this correspondent there are answers. Many of them have been given in the past, but it is fairly clear that they have not all been accepted. Other points may turn on policy or practicability, but that again is not necessarily a full and satisfying reply.

We do not necessarily accept everything that our correspondent has to say at its face value, and in some instances we believe that he is not fully informed as to the reasons which have played their part in bringing into being the results, or lack of results, which he describes. In particular, we believe this to be so in the case of the lack of implementation of the principle of the arrangement of the lodging terms and the reduction of vanguards.

Nor do we agree with our correspondent when he says that "the advertising of vacancies scheme in principle is sound." We are well aware of some of the reasons which were held to be cogent in bringing this scheme into being. Trade union pressure was not the least of them. In our view, however, it is fundamentally unsound that management should be deprived of the right to make such appointments as it believes to be best suited to the efficient conduct of the undertaking. Under the present arrangements, its powers in this direction are, at the very least, severely circumscribed. If a railway officer decides, for some reason which is good enough to himself, that he prefers to remain in the position he has attained rather than to seek promotion, there is very little that the Railway Executive can do about it. If he abstains from putting forward his name when a vacancy is offered, the probability is that he can keep the job he has until his retirement, even although it may be thought that another officer might be better suited to fill the position, or that he could be used more effectively elsewhere.

At the present time, especially in the provinces, there is

believed to be a number of officers who have decided against changing their positions if they can avoid it and, under the present scheme, they can. In most cases, the monetary incentive to promotion is not sufficient to compensate the man for the disadvantages of moving to a new district, and if, in addition, he feels that, to pursue promotion would lead probably to having to take a position on another Region he may well decide against making a move. From the railway officer's standpoint the position is perfectly understandable, but from that of the management, it is undesirable that it should abandon control of so fundamental a function as the placing of personnel.

The whittling down of salaries and the lessening of authority and status of many appointments which have been pursued also have had an unfortunate effect on the reasonable ambitions of the staff. In many cases the approximate equivalent under the present organisation of the old chief officers receive salaries not much above half those paid by the old railway companies. When one takes into account the change in the value of money, the reward for the job, even allowing for the diminution in responsibility and status which has occurred in relation to it, is so striking as to be quite unattractive.

We fear, too, that there is a good deal of justification for the suggestion of "parsimony." There are probably a great many railwaymen who are less irritated by the loss of the somewhat problematical objective of ultimately becoming a General Manager, a Chief Mechanical Engineer or some such chief officer, than by such pinpricking irritations as being told that they can no longer charge their telephone rentals or that their daily expenses must not exceed a figure which would be considered insulting by a relatively junior member of a commercial undertaking. It is to matters of this kind that the railway administration might be well advised to give some of its attention.

### Nigerian Railway

THE annual report of the Nigerian Railway for the year ended March 31, 1950, a copy of which we have received from Mr. D. C. Woodward, General Manager, shows that operating receipts in that year reached the record total of £6,145,026. This sum was insufficient to meet all liabilities, and, even after bringing forward £158,958 surplus from the previous year, there was a deficit of £124,522. Operating receipts were some £400,000 higher than in 1948-49 due mainly to a rise of £337,000 in revenue from the carriage of groundnuts.

Reflecting increases in salaries, wages, and costs of fuel and stores, expenditure also rose steeply by nearly £400,000, and, in the opinion of the General Manager, seemed likely to continue to do so. Mr. Woodward pointed out that there would be no cause for concern if revenue showed prospects of a corresponding steady increase, but adverse climatic conditions and locomotive power difficulties seemed likely to curtail the rise in earnings in the near future. The report contemplated the possibility of increases in passenger and freight tariffs, though this was contrary to the policy of the administration hitherto, which had succeeded in limiting freight tariff increases to less than 15 per cent. since 1939.

The following are some of the principal results during 1948-49 and 1949-50:—

	1948-49	1949-50
	(thousands)	
Passenger journeys ... ..	6,197	5,552
Tonnage hauled ... ..	1,385	1,299
Passenger train-miles ... ..	955	1,080
Goods train-miles ... ..	3,376	4,330
	(£ thousands)	
Passenger, parcels and mails receipts ... ..	1,080	1,015
Goods and livestock receipts ... ..	4,489	4,911
Road transport receipts ... ..	47	47
Total operating receipts ... ..	5,764	6,145
Operating expenditure ... ..	3,764	4,159
Operating surplus ... ..	1,998	1,986
Renewals contributions ... ..	830	830
Interest on capital ... ..	901	901
Net surplus or deficit ... ..	+181	-283

This fall of some £464,000 in the net result, despite virtually equal operating surpluses in the two years, was accounted



for almost entirely by depreciation of investments on behalf of reserve, renewals and pension funds, and the necessity for considerable expenditure from revenue to meet the cost of emergency replacements during the war not covered by renewals fund rules.

A general improvement in operation during the year was aided by the receipt of a further 24 2-8-2 "River" class locomotives from the United Kingdom, bringing the total in service to 47, and 10 "Newfoundland" class from Canada also. The number of engine failures was reduced, but was still high. Moreover, output by workshop labour was considerably below both pre-war standard and what was essential to maintain the locomotive stud. Delays in supplies of spare parts added to this handicap. Fourteen third class coaches of a new type with upholstered seats were received from the United Kingdom and placed in service during the year, as were also 592 new goods vehicles. Aerial and reconnaissance surveys were carried out for a major extension to open up Bornu Province. It begins at Nguru, the existing northern railhead, terminates at Maiduguri, and is about 200 miles in length. When built, this line will assist in developing existing trade between French Chad territory and the Nigerian ports.

Coal output and transport were adversely affected by a go-slow policy among the workers at the Government colliery at Enugu and the destruction of the transporters at Ijora by a tornado. Accumulated stocks of groundnuts were reduced by nearly 200,000 tons, but new crops were poor and future traffic prospects seemed likely to be disappointing, especially as the railway had incurred considerable expenditure on rolling stock to cater for this traffic.

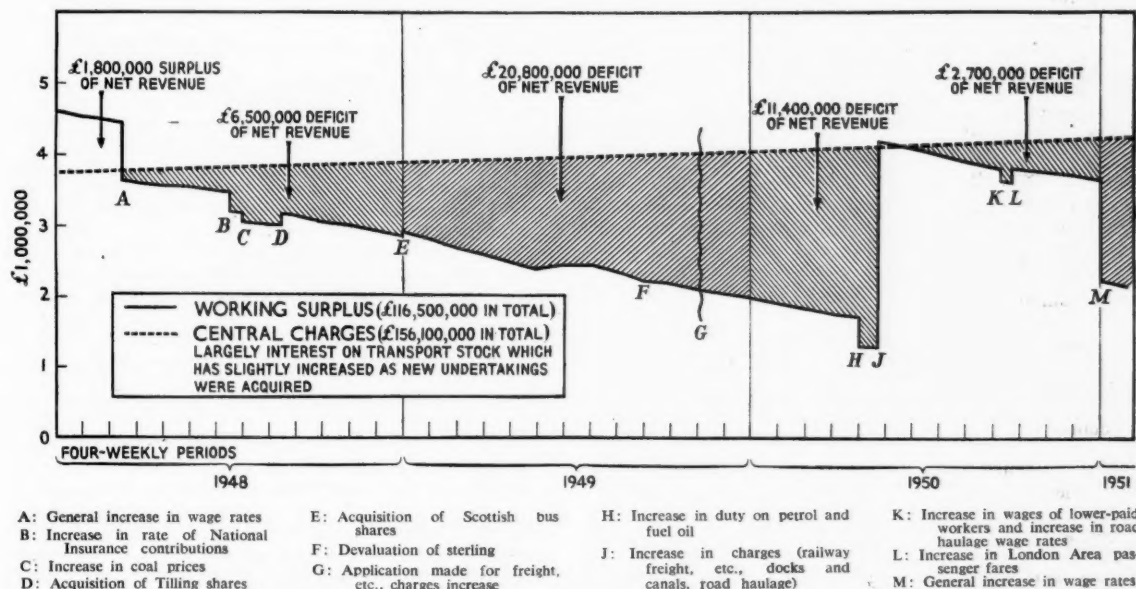
### Nationalised Transport Working Surplus

THE principal factors affecting the working surplus of the British Transport Commission since its inception are shown in the diagram reproduced on this page, which appears in the B.T.C. report for 1950. The salient points are the length of the time-lag (with resultant prolongation and aggravation of the already growing deficit of net revenue) between application in November, 1949, for increases in railway and inland waterways freight rates and their coming into force the following May; the results of these rate increases, which (as the diagram clearly

shows) achieved their object of eliminating the deficit, without any serious decline in traffics—though subsequent rises in prices tended to undo this; and the catastrophic results of the railway wage increases of last January. The general increase in wages early in 1948 and those for lower-paid railwaymen and road haulage staff in September, 1950, also had markedly adverse effects, as did the increase in National Insurance contributions in the summer of 1948.

Sharp increases in the prices of certain basic commodities, such as the higher duty on petrol and fuel oil imposed by the Budget of April, 1950, are clearly shown in their effect on net revenue. What is not so obvious is the rise, especially in the latter half of 1949 and in 1950, in the prices of various other materials, though the effect on prices can be seen of the devaluation of sterling in the autumn of 1949. Factors causing normal seasonal fluctuations in net revenue, such as seasonal variations in railway passenger and freight traffic and the engagement of seasonal staff employed by the several Executives, are not shown, for this would obscure the effects of the non-recurrent factors. The explanation of the fall in the working surplus is a combination of increases in costs with a tendency towards a falling-off in traffics, mainly passenger traffic of British Railways and London Transport; the decline in traffics was accentuated in the late summer of 1949. In the latter part of 1950, when the freight rate increases had been effective since May, and the London Passenger Charges Scheme was becoming effective (from October), there were for a time prospects of the Commission paying its way, but this was nullified by price increases: that this is not made clear in the diagram is due to the necessity already mentioned, for emphasising only the major factors affecting net revenue.

That the claim made in the Commission's report, that the rise in wages and prices outside transport has preceded and caused the increase in the cost of transport itself, is justified, is quite clear: the increases in railway freight rates of May 1950 and April last were preceded by steep falls in the working surplus, the latter themselves occurring in the course of already downward trends. What is remarkable is the accuracy achieved by the increases demanded in balancing revenue, when it was impossible to predict increases in costs or, in the light of public opinion, to demand a margin to meet them.



*Estimated trend of total net revenue of the British Transport Commission, showing main factors affecting working surplus but eliminating normal seasonal fluctuations*

## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Shortcomings of the Railway Executive

July 14

SIR,—There have been many criticisms of railway service during the last few months and many explanations have been given to the poorer quality of that service. We all know that the staff problem is probably the most difficult that we have to overcome, and we have been told that there is not enough money in the till to pay increases. The result is that the present staff is dissatisfied and new blood is not being brought in, so that much less effective effort is being obtained from the number of men employed than would be the case if more reasonable wages were paid. Thousands of pounds are being spent on overtime and Sunday duty which should go to enhancing ordinary wages, as it is acknowledged that the cost of such work is not justified by the amount spent on it.

Despite the lip service which has been paid to co-operation and consultation, it is evident that very little headway has been made. The usual arrangement at consultation meetings seems to be that the management side produces a scheme which has already been considered in detail, and tells the staff side that it is proposed to put it into operation. True consultation ought to consist in both sides sitting down together and thinking out ideas and suggestions of advantage to the British Transport Commission and thereby to the management and staff sides.

After the wages award, a joint committee was set up, consisting of Railway Executive and N.U.R. members, to carry out some of the suggestions made by the Railway Executive for the more economical conduct of the business. Lodging turns and the employment of vanguards were two of the subjects about which a great deal was heard, but so far as one can find out, not a single lodging turn has been re-arranged, and not a single vanguard has yet been knocked off.

Definite dates have been fixed on more than one occasion for the implementation of the "Vanguard Formula," and the staff has been faced with what appeared to be a *fait accompli*. The only result has been that the staff have "refused to play" and the final result is worse than the first.

Another instance of bad psychology on the part of the Railway Executive and B.T.C. was the re-designation of the posts of District Managers. These have all been changed to District Superintendents, on the grounds that they do not now "manage" their respective Districts, as this is done by the Railway Executive, which is now the "Managers" of British Railways! Other similar alterations have been made in the titles of even more important officers. This has all led to a feeling of—"Well, if they are the Managers, let them manage!" The staff knows that the power of management has been taken out of the hands of the local officials and the good relations which once existed are gradually being frittered away.

The majority of the members and staff at Railway Executive headquarters have been there for three or four years and have become completely isolated from practical railway work; they seldom see a railway station, and have certainly no recent practical knowledge of the problems which have arisen as a result of nationalisation. This leads one to wonder whether, if the present set-up at Railway Executive headquarters is to continue, it would be an advantage to change the staff round, say, every two or three years.

Before nationalisation, when a position was becoming vacant through pending retirement, the man who was selected to fill the vacancy was given a period with the man who was retiring, or being transferred, so that he had the opportunity of gaining knowledge from his predecessor which cannot always be obtained in other ways. Today it is the exception to the rule for any appointment to be made before a post becomes vacant, and in the

majority of cases weeks and even months elapse before the selected man takes over the job. There is thus no continuity of thought or effort and no opportunity is given of passing on vital knowledge and information.

Although one feels that the advertising of vacancies scheme in principle is sound, it also brings disadvantages in its train; one used to be able to "groom" a man for possible promotion to a specific position, but today men are applying for posts all over the country and are being moved about without regard to whether that is the right niche for them to fill.

This situation is obvious, even up to the highest levels. Eminent officials such as Operating Superintendents are moved about from Region to Region, when one would have thought that almost a lifetime spent on one railway or Region was a qualification for promotion thereon, but was a distinct disadvantage when one was transferred elsewhere.

There are a few random thoughts on some of the causes of the poor position of the railways today. They can be added to at great length if one only had the time and you had the space. The feeling of parsimony which seems to pervade all dealings, makes one almost despair.

In the recent award to the clerical staff, the increase was back-dated to January 1, but those who retired between January 1 and February 14 are not entitled to the increase, because the latter happened to be the date of the application! Because of the recent advance in salaries, the level at which certain "privileges" were granted has also been raised. If a man expected to get certain additions to his holidays or to the number of passes which he is allowed, because the salary advance brings him above a certain figure, he is now disappointed. The R. E. has increased the qualification.

In my view there will be no real improvement in the railway position until there is a complete change in outlook at the Executive headquarters, and until everyone there adopts the Chairman's idea of *real* consultation and co-operation.

Yours faithfully,

NEMO

### Wording of Official Instructions

June 16

SIR,—Allow me to support Mr. Thomlinson's plea in your April 27 issue for plain English. When an undertaking as big and as complex as British Railways is in process of re-organisation, it is vital that every internal instruction and explanation be worded so as to be immediately understood and incapable of misinterpretation. In the last two years there has been a flood of instructions; it has taken a dozen careful readings to begin to understand what nearly all of them mean. It is a tragic commentary on the apathy that prevails that once such an instruction is published at Railway Executive level, it is handed down from department to department without attempt at amendment or explanation. Incidentally, I have heard of attempts at paraphrases rejected by office seniors on the grounds that they might result in a wrong interpretation!

The railway letter, internal and external, necessary and unnecessary, is usually written in the English one laughs at outside the office and puzzles over inside. It is no excuse to argue that letters have always been written in this language or that it is all one can do to keep on top of things by turning out at top speed letters in which the writer says what he means after his own fashion. To quote Sir Ernest Gowers, "Only the right words can convey the right meaning; the golden rule is to pick those words and to use them and them only." It is time that the idea was dispelled that a letter has no dignity unless it contains

long words, the more obscure the better, and that to prefer "about" to "in connection with," "please" to "I shall be glad if you will," and "June" to "proximo" is unbusinesslike.

The situation is one that the Railway Executive ought to begin to remedy at once. Its first step should be to ensure that every instruction is written in plain English and that the reason for its existence is explained; seldom now is the trouble taken to explain why a thing, never done in the past, is to be done in the future, or why something done in a certain manner in the past is to be done in a different manner in future.

A second step should be for the Executive to encourage the use of plain words by its staff. There are Operating and Commercial schools, and block regulation and goods accounts classes; I would like to see something of this sort done in the matter of plain English. I suggest also that Mr. Thomlinson's poster (an excellent idea!) carries the qualification that, if a letter is necessary, it should say what it has to say briefly, simply and clearly.

I end with one example, from a poster to be seen on every station. The object of the poster is to warn passengers what may happen when it is foggy; instead of getting to this point in two words ("during fog") it takes six—"on occasions when foggy weather prevails."

Yours faithfully,

PETER A. ELLIS

54, Waterdale Lane, St. Ippolyts, Hitchin

### Loss of Life on the Roads

July 12

SIR,—Lord Hurcomb has quite rightly pointed out the many ways in which the railway companies were unfairly treated in competition with road traffic, but I suggest that there is one way in which he might well use his influence to persuade the Government to remove a glaring example of unfairness, for which removal there would be every justification in the saving of human life on the roads.

In the old days, if we sent out a wagon with even a loose bolt, it could be stopped by a railway inspector as unsafe to travel on the lines, but what do we find now? As an illustration, the other day a lorry was conveying heavy girders on the road, the load being merely secured by a piece of thin rope. These lorries on the roads dash about at any speed you like, even when carrying extraordinary loads, but there seems to be little attempt to enforce any regulations and stop them as being unsafe to travel. Of course, if human life is so cheap that this does not really matter, then this kind of thing will go on.

Most fair-minded people will agree that certain classes of traffic, at any rate until the roads are improved, should be compelled to be conveyed on the railways.

Yours faithfully,

DUNCAN BAILEY,  
Chairman

Charles Roberts & Co. Ltd.,  
Railway Wagon Works,  
Horbury Junction, near Wakefield

### State of British Railways Rolling Stock

July 14

SIR,—I was very distressed indeed to read in Mr. John P. Taylor's letter in your issue of July 13 of the most unsatisfactory condition of the coaches used for the special train conveying home and overseas naval architects and marine engineers from Euston to their International Conference in Glasgow. May I, on behalf of British Railways, convey to them through your columns my sincere apologies for the most regrettable inconvenience and discomfort they sustained?

Unfortunately, under present conditions, it is not possible to provide soap and towels in all our main-line trains, but the other aspects of the matter are being specially investigated, and every possible step will be taken to prevent any

future breakdown of this kind in our arrangements for travellers.

Meantime, I should like to assure passengers on this train that British Railways will gladly recompense them for any losses they may have sustained through the condition of our coaches.

Yours faithfully,

GEORGE DOW  
Public Relations & Publicity Officer

The Railway Executive,  
London Midland Region,  
Euston House, London, N.W.1

### Headway in St. Clair Tunnel, C.N.R.

July 12

SIR,—The article on the above subject in your issue of July 6 describes how, by the use of special track installation, the loading gauge has been increased by 6 in. in the St. Clair Tunnel on the C.N.R.

This installation was developed by Mr. C. P. Disney, formerly of the Canadian National Railways, and the Disney rail chairs used are covered by patents in this country. Should any of your readers be interested in obtaining further particulars of this installation we shall be pleased to provide it.

Yours faithfully,

A. L. B. DAWSON,  
Managing Director

Self-Priming Pump & Engineering Co. Ltd.

### Wagon and Train Loads

July 12

SIR,—In your July 6 issue Mr. R. Bell provides some interesting statistics of three American railroads, but he omits to give the corresponding statistics of British railways so that a proper comparison can be made. Will he please provide them, also the total tonnage, average haul, and average rates of each railway?

Mr. Bell claims that the decline in the Pennsylvania Railroad speed was due to heavier train loads. But it was more likely to be due to the strikes to which he refers. The size of wagon and train loads is not, he says, by itself a conclusive test of efficiency. This hardly squares with the information given in the article "Indices of Railway Efficiency" published in your June 22 issue.

OBSERVANT

Eynesbury, St. Neots

### The Place of Sentiment

June 26

SIR,—Your editorial remarks in your June 22 issue on the Western Region drivers who are petitioning the Railway Executive against certain current tendencies in their Region raise the issue of sentiment against efficiency. A deep-felt sentiment for old traditions is probably at the root of the drivers' action and will incur criticism thereby as impeding progress. Nevertheless, this is precisely the sentiment which promotes a sterling loyalty to one's work and employers, and its very absence is one of today's crucial problems. Indeed, it is the stuff of which enthusiasts are made in every walk of life.

Efficiency seems to grow at the expense of sentiment, but railways, with their long and colourful history, will always have to make a place for sentiment. An engineer myself, I fully appreciate the need for efficiency and new methods; as a student of railway history for about 25 years I would, however, travel thousands of rail-miles a year (if I were sufficiently prosperous) for sentiment's sake, whereas if efficiency only were my object I might buy a car.

Sentiment may occasionally be misguided, but it is too valuable an emotion to be treated otherwise than with respect and sympathy.

Yours faithfully,

WILLIAM B. STOCKS

22, Heatherfield Road, Marsh, Huddersfield



## THE SCRAP HEAP

### The Joys of Travel

Mental home on Piccadilly Tube, with separate buildings and large gardens; all modern treatments from residential doctors; elderly patients taken.—From an advertisement in "The Times."

### Midland Memory

I cannot agree with your statement that the Great Western Railway's only rival in the affectionate esteem of the travelling public was the L.N.W.R. [See the Scrap Heap of June 29.]

The popularity of the Midland Railway—operators of the first day excursion in 1840, first company to admit third class passengers to all trains in 1872, pioneers of the Pullman Car in England in 1874, and owners of the most comfortable third class carriages in the world—will be remembered by travellers of the past age of efficient railways.—From a letter to the "Daily Mail."

### Breakfast Xylophone

Passengers on the Paris night ferry train have long complained of being awakened by the sleeping-car attendant banging a spoon on a tray to announce that breakfast was ready.

Many suggestions have been made to the Pullman company as a substitute for this matutinal din. One was: Why not have a tinkling handbell, like on Continental trains?

The company has improved on that idea. The attendant has been issued with a hand xylophone. He calls passengers to breakfast by playing an army mess call.—From the "Evening Standard."



"Hold tight—there's a nasty corner coming"

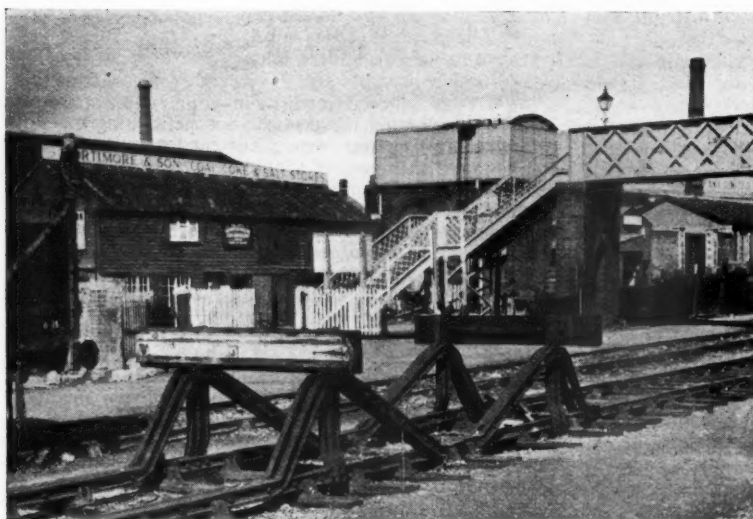
[Reproduced by permission of the proprietors of "Punch"]

### Station Announcing on Trains

The writer of the letter to *The Evening News*, quoted in our last week's issue, who called for a loudspeaker system on trains to announce the names

of stations, may be interested to know that the Pullman Car Co. Ltd. led the way with this facility in April, 1946. The "Golden Arrow" was re-introduced then, after the war, and practically all other Pullman main-line trains are now fitted with loudspeakers.

### Back-to-Back Buffer Stops



Back-to-back buffer stops at Chippenham, Western Region, provided to divide what would otherwise be one siding into two separate sidings, as the connections with the running lines are controlled by different signal boxes

Photo]

[D. J. W. Brough

### "The Heart of Midlothian"

British Railways are advertising "Seven New Festival Trains," and one of these is called "The Heart of Midlothian." Presumably neither Biff nor Buff has read Sir Walter Scott. The Heart of Midlothian is, of course, the notorious old Edinburgh prison.—"Peterborough" in "The Daily Telegraph."

### "The George"

That handsome old galleries inn, "The George" in Southwark, has been restored by tenants of the National Trust who own the property. . . . There has always been a close association between Guy's and "The George" . . . since the days three-quarters of a century ago when the hospital owned the inn. It was then sold to the G.N.R., which demolished the north wing.

Such destruction has since seemed unforgivable, but in recent years the L.N.E.R. made amends by presenting the inn to the National Trust, and British Railways have given permission for a festival of Shakespearean drama to be held in the yard.—From "The Scotsman."

# OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

## PAKISTAN

### Measures to Counteract Floods

During 1950, the North Western Railway suffered severely from floods, especially on both sides of the Ravi river crossed by the Khanewal-Shorkot Road section. There were, however, also many miles of the Lodhran-Sher Shah section damaged, and a shorter length on the Khanewal-Sher Shah section. To minimise the risk of breaches in future, steps are being taken to replace the Ravi Bridge at Abdul Hakim, on the first section mentioned by a longer structure. The Ravi is also crossed higher up, outside Lahore, by a double-line bridge on the Lahore-Rawalpindi main line, where the proposal is to increase the number of 100-ft. spans.

## UNITED STATES

### Loss on Dining Car Services

Class I railways still report substantial losses in providing dining and buffet service. The Bureau of Transport Economics & Statistics of the Interstate Commerce Commission states that it cost the railways \$1.384 of direct expenses in 1950 to produce \$1 in revenue from dining and buffet service. This is only a slight change from the 1949 figure, when it cost the carriers \$1.392 to produce \$1 in revenues from this source.

The I.C.C. Bureau said that the railways' total loss in providing this service last year was \$26,800,000, compared with a loss of \$28,600,000 in 1949.

## CANADA

### Freight Rate Legislation

The Government plans to introduce its freight-rate equalisation Bill at the present session, but let it await passage until the autumn. Government officials have said that this move, making the complex Bill public well in advance of parliamentary action, also would give time for it to be studied by the railways, the provincial governments and others interested in the freight-rate question.

The legislation, based on recommendations of the Royal Commission on Transportation, is still being drafted. It is regarded by the Government as a draft measure which could be amended considerably as the result of the studies of the committee. In its present form, it contains a series of amendments to the Railway Act which may be summarised as two major provisions: authorisation for the Board of Transport Commissioners to work out a scheme of equalising freight rates as between the various areas of the country; a specific enactment to guarantee that the inland areas of the West receive part of the benefit of low transcontinental rates between

the eastern and western seaboard. This will provide that rates between the east and inland western points cannot be more than one-third above those between the east and the west coast.

The Government plans to put into force a third commission recommendation, a subsidy towards meeting freight-rate costs. This is not included in the current legislation but will be introduced later as a supplementary financial appropriation. The subsidy, about \$7,000,000 a year, will go towards meeting the cost of railway operation in the thinly-settled Northern Ontario rail "bridge" between the East and the West. Its major effect, it is expected, will be to lower shipping charges on many commodities going from the East to the West.

## PERU

### New Construction

A six-year programme for railways, roads and irrigation systems, at an estimated expenditure of 3,200,000,000 soles, includes a number of new lines. The most important is an extension of the existing standard-gauge La Oroya-Cerro de Pasco line (118 route-miles), owned and worked by the Cerro de Pasco Railway, with offices in New York. La Oroya is an important junction on the Central of Peru line from Lima.

The extension, begun in April, leaves the Cerro de Pasco line at Tambo del Sol, about halfway between La Oroya and Cerro de Pasco. Leading almost due north, it will terminate at Pucallpa, a river port on the Ucayali River which flows north-eastwards and falls into the Amazonas near Nauta, still in Peruvian territory. The new line will be about 350 miles long, and will form an important link in the future railway-river route between Lima on the Pacific coast, and, by way of the Amazonas, the Atlantic coast.

## SWITZERLAND

### Rhaetian Railways in 1950

The passenger traffic on the Rhaetian Railways in 1950 continued to be adversely affected by the increasing road competition; the number of passengers conveyed, 5,187,060, was only 0.2 per cent. lower than in 1949, but more serious was the decline in passenger-km., from 113,800,000 in 1949 to 104,440,000, or 8.2 per cent.

The road competition chiefly affected the first and second class traffic which was down by 9 per cent. The only class of passenger traffic which increased was group and collective travel—55,158 passengers, compared with 21,356 in 1949.

Goods traffic registered a decline of 3.2 per cent. only (compared with one in 1949 of 14.8 per cent.) to 336,400

tonnes; goods mileage increased by 5.8 per cent. to 13,530,000 tonne-km.

Because of the financial situation, the scheduled services had to be reduced beginning with the 1950-51 winter timetable, by 7 per cent. Offers to substitute road services for the discontinued train services, made by the Postal Administration and also private road hauliers, had to be declined because it was found that they would have cost the Rhaetian Railways more than the train services which they were intended to replace.

### New Line in Valais

Increased tourist traffic to Verbier in Canton Valais has led to agreement to build a branch from Sembrancher, on the existing line from Martigny (on the Simplon line) to Orsières, to Le Châble. A postal bus service connects Le Châble with Verbier, which lies at 5,000 ft. above sea level.

The branch will also help to convey materials for the building of the Mauvoisin dam a few miles further along the valley of Bagnes.

## ITALY

### Genoa Underground Railway

A company known as Società Ferrovie Elettriche Metropolitana di Genova has submitted a scheme for an underground railway to the Genoa municipal authorities. The proposal is for lines totalling 12½ miles in the first instance, and the company expects to be able to secure the concession to build and work the system shortly.

## FRANCE

### Improved Connections with Switzerland

Preliminary negotiations between the French National Railways and representatives of the Government of the Canton of Berne, held in Paris early in July, dealt with the problem of improving the railway connections between France and the main centres of the Canton, particularly Berne. As a result, the French National Railways will consider the tentative resumption of local services, limited to Saturdays and Sundays, between Belfort and Delle, a Franco-Swiss frontier station in French territory. Since the war, this line, 13½ miles long, with only one intermediate station, Morvillars, has been used only for through services; at present, there are two fast trains a day each way over this route between Paris and Berne. The question of putting on a fast connecting service between Belfort and Berne linked with the high-speed railcar services between Paris, Belfort, and Basle, is also to be considered.

A further problem to be settled is the reopening of the Pfetterhouse (France)-

Bonfol (Switzerland) section, some three miles long, of the standard-gauge Dannemarie-Porrentruy line. Dannemarie is on the Belfort-Mulhouse main line, 20½ miles east of Belfort; Pforzheimer is 11½ miles further south, close to the frontier. Porrentruy is on the Swiss main line from Delle to Bienne, 7½ miles south-east of Delle.

The Porrentruy-Bonfol line, owned and worked by the Chemins de Fer du Jura, is 7½ miles long. It was opened in 1901, and the link across the frontier was built in 1910; traffic on the latter has been suspended since 1939. The Porrentruy-Bonfol line is being electrified; on the Dannemarie-Pforzheimer line steam and diesel services are run.

## DENMARK

### New Baltic Ferry Service

In our July 7, 1950, issue, appeared a short article and map on a proposed new ferry service between Rodby, on the Danish island of Lolland, and the German island of Fehmarn, as part of a project to provide a more direct route between Hamburg and Copenhagen. This proposal has been shelved for economic reasons, but a substitute plan has been carried out with the inauguration on July 15 of a ferry service between Gedser, the Danish terminus of the existing ferry service to Warnemünde, and Grossenbrode, on the Ger-

man mainland, opposite Fehmarn island, whence a branch runs to Lübeck.

There are two daily services between Hamburg and Copenhagen via the new route, but no through coaches are conveyed. The service will ease congestion on the longer existing route, via Fredericia and Korsør, but the line taken is greater, as transshipment of passengers and goods is necessary at Grossenbrode and Gedser.

Because of the increased traffic between Sweden and Western Germany, a ferry service runs between Trelleborg, Sweden (whence train ferries ply to Sassnitz in Eastern Germany, and to Odra in Poland), and Grossenbrode.

## WESTERN GERMANY

### Coal Supplies

The Federal Railways are threatened by a growing coal shortage, as a result of a falling off in output from the mines. Stocks of locomotive coal covered something like eight days by the end of May.

The allocations of coal to the railways in the present quarter will be down by 12 to 15 per cent. as compared with the supplies obtained in the June quarter, despite imports of American coking coal, which totalled between 500,000 and 600,000 tonnes for the first four months of the year.

It is reported that negotiations are

in progress on the establishment of a quota system to cover the minimum coal requirements of all users. The Federal Railways' coal consumption was reduced last year because of improved user and better maintenance of locomotives and the introduction in 1949 of bonuses to drivers for saving coal.

## IRELAND

### G.N.R.(I.) Holiday Traffic

The annual holiday season in Northern Ireland has resulted in one of the busiest weekends of the post-war period on the G.N.R.(I.).

On Saturday, July 7, eleven trains, five non-stop, and most of them fully booked in advance, conveyed 6,000 holidaymakers from Belfast to Dublin. In addition to the five daily services five extra trains ran from Belfast to Londonderry and Donegal.

On Sunday, July 8, 375 persons travelled by a special train from Dun Laoghaire to the Glens of Antrim on an organised excursion. Three transport companies were involved. The train travelled over Coras Iompair Eireann lines from Dun Laoghaire to Dublin, by G.N.R.(I.) to Belfast and then by Ulster Transport Authority buses on a 100-mile tour of the glens. The charge of 35s. a head included a four-course hot lunch served on the outward train journey and high tea on the return trip.

## Publications Received

*Henry Robertson: Pioneer of Railways into Wales.* By George G. Lerry. Oswestry: Woodalls (Printers & Stationers) Limited. 7½ in. × 5 in. 52 pp. + 3 plates. Price 4s.—This booklet tells something of the life story of Henry Robertson (1816-1888), a young Scotsman who went to Denbighshire in 1842 to survey mineral resources, decided that the first essential was improved transport, and gave this corner of Wales its railways. Probably his most outstanding work was the Dee Viaduct at Cefn, of which an illustration is given. Robertson spent 46 years in and about the district, and his many industrial activities included a partnership in Beyer, Peacock & Company, of which it would be interesting to have more details than are given. The link must have been strong, for Robertson gave his eldest son (born in 1862) the names Henry Beyer. The work of such men as Henry Robertson is worthy of record.

*Vimana Samachar: H.A.L. 10th Anniversary Number.* A special number of the quarterly journal published by Hindustan Aircraft Limited (H.A.L.) 95 pp. 10 in. × 7 in. Illustrated.—This well-produced magazine is mainly a record of the history and achievement of Hindustan Aircraft Limited (H.A.L.), an Indian firm registered in 1940 with American and British assistance in the construction and organisation begun in 1941, under Mr. W. D. Pawley, an ex-

perienced American aircraft builder. By the end of the war H.A.L. had turned out 406 C.47 cargo planes, 374 B.25 light bombers, 176 B.24 heavy bombers, 55 Catalinas, 160 miscellaneous aircraft and 3,800 aircraft engines. With the coming of peace, occupation had to be found for this great organisation, which in 1945 employed 16,000 men, including 250 Americans, and cost \$4,500,000; the U.S. Army had by then become the managing agency, but in that year ceased to be so, and removed half the plant. Labour was cut down to 3,500 and a comparatively small amount of peacetime aero work was continued. Among other outlets for the firm's capacity thenceforward was the building of all-steel railway coach shells of light weight, and latterly all-welded, on aero principles. Six types of shell have been designed and built and 250 of two types have been or are being built now on mass-production scale. Some details of these developments appear on page 67.

*Mechanics Applied to Vibrations and Balancing.* By D. Laugharne Thornton. Second Edition Revised. London: Chapman & Hall Limited, 37, Essex Street, W.C.2. 10 in. × 6½ in. × 1½ in. 584 pp. Price 50s.—The second edition of this authoritative work has been published to improve its predecessor as a practical treatise by adding a new chapter and re-writing the general survey of the subject in which several new problems are solved. The significance of the additional chapter is that it deals with a

matter of increasing importance, namely, the transmission of stress under rapidly applied loading. The book contains much of interest to civil and mechanical railway engineers. Vibration set up in bridges by hammer-blow and other impact causes, and the general theory of vibration in beams and plates and its waves transmitted through them, are fully discussed with a wealth of calculations and formulæ. The dynamic loading of structures, vibration due to earthquake shock, and in framed structures with rigid joints are other fields of calculation. A whole chapter is devoted to balancing locomotives.

*Standard Industrial Locomotives.*—This book published by the Yorkshire Engine Co. Ltd. provides an interesting account of the activities of the firm since its formation in 1865. Since then the company has played an important part in railway development as a supplier of main-line locomotives in this country and abroad. During the difficult years of the early 1930s the works were mainly engaged in general engineering work. The firm was taken over by the United Steel Companies Limited in 1948 and since then its works have been re-equipped with the object of returning to their normal work of locomotive building. Included in the book are a list of the principal dimensions and diagrams of standard industrial steam and of diesel-electric locomotives designed in collaboration with the British Thomson-Houston Co. Ltd.



## Steam Locomotive Research in France

*Some results obtained at Vitry engine testing plant, French National Railways*

ON January 27 members of the Managing Committee of the O.R.E. (International Union of Railways Research Office) visited some of the testing plants and laboratories of the rolling stock and motive power department of the French National Railways. On this occasion Monsieur Chapelon, Chef de la Division des Etudes de Locomotives à Vapeur, reviewed the work done since its inauguration in 1933 by the locomotive testing plant at Vitry, near Paris, which was described in our issue of September 28, 1934. The Vitry testing plant has functioned more or less continuously since its inauguration. Its very complete equipment has facilitated fundamental research into the running of a large number of locomotives as well as of the behaviour of various parts such as superheaters, frame, and motion. Forty types of engine have been examined either individually or as classes, so as to determine general characteristics from the point of view of power output and fuel consumption or to examine the working of special fittings or apparatus or to ascertain the cause of running faults.

### Problems of Steam Raising

Examination of certain phenomena in combustion, in connection with the quality of fuel used, showed the importance of the coking power in hand firing, of greater significance than the calorific value, and the importance of the relationship between the content of volatile matter and calorific value in mechanical stoking. Similar examination in the case of oil fuel made possible the determination of optimum temperatures for preheating which vary with the degree of viscosity of the oil at normal temperature, as well as the best layout and proportions to adopt for the combustion chamber and air inlets; these factors proved to be much more significant than even the type of burner employed. Other matters studied were smoke consumption apparatus and a number of methods of dealing with exhaust.

### Heat Transmission

The transmission of heat by the heating surfaces of the boiler and of the superheater also was examined. It was possible to compare the degree of heat produced by the heating surfaces in the case of steel and copper fireboxes, in addition to the degree of contraction caused by differences in expansion which occur at the time of lighting and dropping fires. Examination of the efficiency of different types of superheater element could also be made, and the results were of value in research into the raising of the superheating temperature in locomotives.

Recovery of heat losses was a further matter for research, either by gas in the

forward part of the barrel, which resulted in increases in performance of some 10 per cent., or by heating by exhaust steam.

### Efficiency of Cylinders

Studies were made of the effects of longitudinal balance on the performance recorded by dynamometer. A solution was found to the problem in the interposition of a shock absorber of high capacity in the oil tube connection between the dynamometer and the recording cylinder. Hydraulic dynamometer cars also were fitted with this device. Variations in tractive effort at the driving wheel rim as a function of the degree of cut-off, and in speed in connection with the size of ports, were also examined.

In the case of variations in the output of cylinders, experience has shown that indicator apparatus should be placed on the cylinder heads themselves without interposition of any tubing in order so as to obtain correct results independently of speed. Otherwise the pantographs in the indicator apparatus speedily wear out. Use has been made of ultra-rapid cinematography of the end of indicator piston, from which it is possible to assess on film suitably enlarged the movements in a given period of time, the end of the stroke being recorded electrically by means of light flashes.

"Organic" efficiency, expressed as  $\frac{P_j}{P_i}$ , the relation between h.p. at wheel rim and indicated h.p., was studied, also "commercial" efficiency,  $\frac{P_u}{P_j}$  (P<sub>u</sub> being the d.b.h.p.), data which have significance only if the three h.p. (indicated, at wheel rim, and d.b.h.p.) are measured exactly.

### Cylinder Temperatures

Examination was also made of problems of temperature in cylinders, following Hirn's method, which illustrates the exchange of heat between heating surface and steam during the whole cycle of operations. The effect of the "heat reservoir" formed by the metal of the cylinders could even be increased, as seems to be shown by important variations in fuel consumption in relation to speed; these variations have been noted in the course of many trial runs and at the locomotive testing plant. Increases from 20 to 40 per cent. have been achieved, after the opening of the regulator, or (on the other hand) only for a given period counted from a certain moment (30-40 min., according to circumstances) when running conditions, i.e., superheating temperature and that of the cylinder walls, remained the same. A comparative figure therefore means little if it has not been determined in relation to this state of equilibrium

which only the measure of temperature of the interior of the cylinder walls can reveal precisely. These factors show the importance of determining the temperatures of steam and of the cylinder walls during the whole cycle so as to discover the best running conditions for existing types of locomotive and the best design of cylinders.

The great difficulty has been in devising a means of determining temperature without inertia; the problem was solved by a French research worker, Monsieur Claude Bonnier, who used as a means of detecting temperature tungsten wire 0.03 mm. in diameter, mounted on a Wheatstone bridge with recording of temperature variations by means of a cathodic oscillograph. This apparatus, which has not long been in service, has given interesting results. It was noted in particular that even with steam superheated to a high temperature, the exchanges of heat were considerable. During compression, passage of steam, due to insufficient steam-tightness, gave rise to exchanges of the same degree as the quantity of heat transformed into energy during the steam cycle. This is conducive to a small amount of compression and in consequence of a very small amount of clearance, which are hard to combine with the large diameters in steam passages which obviate "wiredrawing" at high speeds.

### Results Achieved

The use made of the results so far achieved has given rise to very considerable perfection during the last 20 years in compound engines and among them those of the Pacific type, of which the continuous d.b.h.p. at 75 m.p.h. has been increased from 1,450 to 2,700 and coal consumption much reduced. More recently, and as a result of the most recent experiments, this progress has been continued with success in the difficult case of simple-expansion locomotives which has reduced coal and water consumption by 20-25 per cent.

Important improvements remain to be perfected, both in fuel efficiency and in the thermo-dynamic sphere. Losses through passage of cinders are still too great, especially when the locomotive is being thrashed, and have adverse effects on fuel consumption. The power output cylinders is too dependent on variations in running, which is particularly serious in the case of services with frequent stops.

The testing plant has also a function to perform in examination on behaviour of moving parts of locomotives with the aid of the ultra-rapid cinema camera and other devices. The Vitry plant in its present state allows of experiments with engines with six driving axles each with an axle load of 30 tonnes and at speeds of up to 100 m.p.h., and for all types of motive power.

## Railway Coachbuilding at an Indian Aircraft Plant

*Lightweight coach shells constructed on aero principles and scientifically tested*

TO occupy part of the remaining half of the great wartime plant of Hindustan Aircraft Limited (H.A.L.) at Bangalore, and employ some of the 3,500 remaining of the original 16,000 workmen, the building of railway coach shells was begun early in 1946. The prototype, Model 402, was fabricated experimentally with a width of 11 ft. 8 in. to comply with the new Indian standard. It was intended as a sample to determine the physical strength under actual test of a design for a lightweight body with anti-telescopic resistance and of all-metal semi-monocoque construction based on aircraft principles.

Mild-steel sheets of from 0.028 in. to 0.064 in. thickness were used, but were not all-welded, as some riveting and some spot-welding were preferable at that stage. The result was a structure weighing 10 tons 9 cwt., with two large compartments, each with three lavatories and sub-divided into five smaller compartments with three tiers of transverse seats or bunks, the middle tier folding down as a back-rest for the bottom seat during the day. In one half of the coach the seats were continuous with a 2-ft. side corridor. One half had plywood panelling and the other aluminium with Kapok insulation.

This coach was subjected to a severe series of tests at the Research Station of the Railway Board Central Standards Office, Delhi. Various types of loading were applied, and, as a test of vibration, impact, and shock, all springs were re-

moved from the bogies and wheels with flats on the treads were fitted. It was then hauled over a special test track, subjecting it to severe vibration, loaded to twice its normal load. To test the shell under buffing conditions, the coach was fly-shunted against three covered wagons fully loaded with earth and with brakes pinned down; their couplings were screwed up tight. Collisions occurred at speeds varying from 5 to 12½ m.p.h., and the results were valuable from the point of view of design. In the final 12½-m.p.h. test, the body yielded near the floor beams, showing that improved attachment of the body to the underframe was necessary.

### Second and Third Designs

With this experience as a guide, a second coach, Model 403, was designed for production, but when nearly completed, it had to be scrapped as the Railway Board decided that coaches then on order from H.A.L. should be of the old standard 10-ft. width. Accordingly a third design, Model 404, was prepared, and 100 third class coaches of this type were ordered by the Board. They included fans, flush lavatories, three-tier seats and bunks, and compartments with additional safety equipment for the use of ladies.

Meanwhile, H.A.L. engineers were developing newer methods embodying the latest principles of construction. In Model 405, therefore, the shell is of the integral type, in which the separate

underframe is dispensed with, and the body itself acts as a girder span taking all the load. The body was still riveted but the flooring part of the shell was all-welded. At the Board's instruction this coach was again 11 ft. 8 in. wide, and was built as a prototype for test purposes. It underwent considerably more scientific tests at Delhi, and the stresses developed at various points were measured and recorded. The tests revealed a need for the reinforcement of some parts of the structure and the Board favoured all-welded fabrication.

Accordingly a still further improved model, No. 406, was produced, all-welded but 10 ft. wide. It was subjected to even more scientific tests, including hydraulic buffing tests and electrical strain gauge recordings. As well as separate load and buffing tests, the two were combined, and vertical impact or vibration and collision tests were carried out. It is understood that this model stood up well to all these tests, and though the welding work had to be unduly hurried and therefore left a good deal to be desired in appearance, its strength would seem to be satisfactory.

While awaiting the Board's decision on Model 406, H.A.L. built a still further improved model, No. 407, embodying considerable improvements for passenger comfort as well as 406 fabrication. The Board therefore placed an order for 150 of the 407 Model, and these have been, or are being, built by mass-production methods.

## Reconstruction of Lessart Viaduct

*Single unreinforced-concrete arch built in replacement of girder span*

A VIADUCT claimed to have the longest arch span of any railway bridge of unreinforced concrete arches, has been built at Lessart, about 3½ miles north-east of Dinan, in the Côtes-du-Nord department of France. It carries the Lison-Lamballe line of the S.N.C.F. across the valley of the Rance. Besides the central span, which measures 286 ft., there is a number of masonry arch approaches.

### Original Design

Originally, the central part was a steel truss girder of double-track width. This was destroyed by the Germans in 1944, but the approach arches remained intact. As the line is single-track throughout, and not likely to be doubled, it was decided for economic reasons to replace the destroyed structure by a single-track viaduct. During the preliminary surveys, it was found that the abutment piers of the central span, and their bedrock foundations, were intact, and

that these foundations could well be used to bring down the vault thrust of a great, massive concrete arch, which would not even need steel reinforcement.

The arch has a span of 275 ft. (slightly less than the original steel span), and a rise of 76 ft. 6 in.; the springings are built into the abutments. The main arch has open spandrels, carrying on columns six secondary semi-circular arches faced with granite matching the masonry of the approach viaducts; the concrete of the main arch itself is not faced.

The concrete arch was poured in three layers, each in separate voussoirs. The framed and braced nailed timber centring, forming a two-hinged arch, was built by the contractors, Constructions Edmond Coignet, and designed by them to carry the weight of the first layer of the concrete arch. The centring rested on temporary reinforced concrete supports at the base of the abut-

ments. The two legs of the centring were built as towers on each bank, and subsequently lowered and connected in their working positions.

During the pouring of the arch, Coyne stress indicators were built into different parts of the bridge, for the purpose of measuring the stresses and comparing them with the calculations.

Work began early in 1949, and the bridge was handed over on June 28, 1950. Some two months before then, when the arch had been poured but the centring had not yet removed, the site was inspected by a party organised by the *Institut Technique du Bâtiment et des Travaux Publics*. On that occasion Monsieur A. Lazard, chief of the Engineering Works Division of the S.N.C.F., and Monsieur H. Laporte, Manager of Constructions Edmond Coignet, gave detailed accounts of the work which have since been published in a small volume (No. 174, February, 1951) of the *Annales* of the Institute.

## Shock Absorber for Goods Wagons

*Method of reducing impacts on oscillations to the minimum*

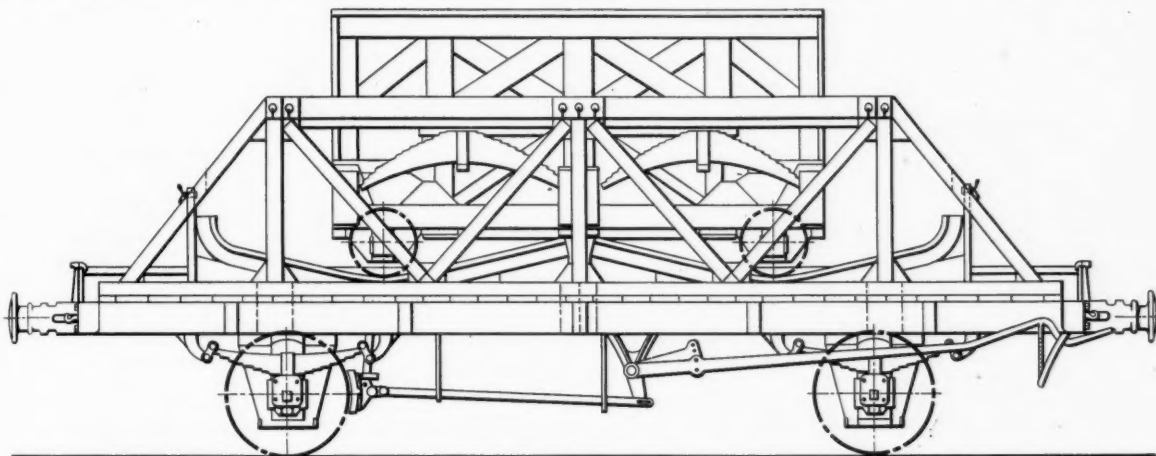
FOR some time the French National Railways have been experimenting with a shock absorbing device built in their workshops from plans drawn up by two of their engineers, M. Delplanque and M. Vaucelle, and designed to prevent damage to goods arising from heavy impacts during shunting operations or movements occurring during rail transit. The equipment can be installed in ordinary goods wagons and its essential feature is the ability of a chassis mounted on wheels to move up or down inclined ramps in accordance with the movements of the wagon on which it is fixed. Movement of the chassis is restricted by springs.

The impacts or oscillations to which goods loaded in the chassis are subjected are thus reduced to negligible proportions by the combined effects of gravity on the inclined ramps and the restraining action of the springs. The shock absorber has been subjected to severe tests, including collisions with vehicles travelling at 12 m.p.h., and it has also been tried out under normal service conditions.

These trials have shown that even the heaviest and most fragile loads such as electric transformers, mercury-arc rectifiers, machine tools, plate glass, acid carboys, eggs, and so on, can be carried in the chassis without risk of damage.

Not only does this device greatly diminish the risk of damage to goods in transit; it also reduces the need for special packing material or containers which are often very expensive and which frequently cannot be used more than once.

In addition to the permanent fitting of special wagons with this equipment, the building of lightweight chassis in the form of pallets or containers which can be more easily fixed on ordinary trucks, is also being studied. This chassis is still in the experimental stage, however, and no decision has yet been taken by the S.N.C.F. regarding its general adoption.



*Diagram showing construction of shock absorber designed by S.N.C.F. engineers*

**MIXED CAPITAL FOR NATIONALISED UNDERTAKINGS IN BRAZIL.**—An agency message states that President Vargas of Brazil is expected to ask Congress for powers to transform certain nationalised undertakings into mixed capital companies. Under this plan the Brazilian Government would be likely to hold 51 per cent. of the stock with the remainder divided into ordinary and preference shares. Railway undertakings likely to be affected are stated to be the San Paulo, Central of Brazil, and Leopoldina.

**EUROPEAN TRANSPORT CO-ORDINATION.**—A general European transport policy to co-ordinate rail, road, and water traffic to facilitate trade and reduce costs, has been discussed recently by representatives of 14 European countries and the United States attending a meeting of the Inland Transport Committee of the Economic Commission for Europe. Mr. T. Menemencioglu, of Turkey, the acting chairman of the Committee, stated that the most difficult problem was the co-ordination of European transport as economically, efficiently, and uniformly as possible. He added that the Government representatives attending the meeting had agreed on the

necessity of co-ordinating investment in the various branches of inter-European transport and to practice a policy of international tariffs. A European Transport Authority was eventually contemplated. Countries represented at the meeting were: Austria, Belgium, Denmark, France, Italy, Luxembourg, Norway, Netherlands, Poland, the United Kingdom, the United States, Sweden, Switzerland, Turkey and Yugoslavia.

**TRAINING OF STEAM DRIVERS AS MOTORMEN.**—For the inauguration early in 1952 of Stage 1 of the Eastern Region Manchester-Sheffield-Wath electrification scheme, between Wath and Dunford Bridge, where the electric locomotive depot is nearing completion, Wath is to be the training centre for motormen recruited from steam drivers at Mexborough Motive Power Depot. Initial training consists of a fortnight's course for twelve men, one week being allocated to lectures with the aid of diagrams, and a second week to practical training, electric locomotives being used on a specially opened short section of electrified line in Wath Exchange Sidings. After a short examination, men return to steam working. Later, when the electrified line has been

extended to Wombwell Main Exchange Sidings, each group will resume training for a further week on electric locomotives. The final training will take place in the latter part of 1951, when it is anticipated the line will be opened to a point near Barnsley Junction (Penistone). This phase will concentrate on braking and regenerative braking.

**MOTOR VEHICLES (CONSTRUCTION & USE) REGULATIONS.**—Certain amendments to the Motor Vehicles (Construction & Use) Regulations, 1947, came into force on July 16, under Regulations made by the Minister of Transport. These Regulations will permit the limited use of works trucks between, say, neighbouring factory premises; introduce minor relaxations in respect of pedestrian controlled vehicles and road sweeping vehicles; authorise the drawing of certain trailers of up to 45 cwt. total weight without an attendant; revoke the requirement that the size of tyre must be marked on the wheels of heavy motorcars. Copies, which are entitled the Motor Vehicles (Construction & Use) (Amendment) (No. 2) Regulations, 1951, can be obtained from H.M. Stationery Office, price 3d.



## Narrow-Gauge Locomotive Design

*Problems which occur in the design of locomotives for the smaller gauges*

By Geo. W. McArd, A.M.I.Mech.E.

**A**LTHOUGH many difficulties arise in the normal course of design on every new type of engine, regardless of gauge considerations, few locomotive designers will dispute that the major problems almost invariably occur in the design of locomotives for the smaller

wheelbase, that for the 3-cylinder 2-8-2 type engines built in 1925-26 by the Vulcan Foundry for the Nigerian Railway being 3·92 compared with 4·55 for the "A1" class engines of the former L.N.E.R., this being also virtually the same for the "15F" class loco-

work of the civil engineer in adapting the road as much as possible to the terrain traversed and by avoiding tunnelling to keep down the cost of line development—greater provision must be made to negotiate the curves with a minimum, if, indeed, any, strain on the engine framing. This often will involve blind tyres for one axle on an 8-coupled engine, and thinned flanges for a second axle, with a greater measure of axle-box horn clearance transversely than would be permitted on the faster running units on the standard and broad gauges. Bogie and truck transverse movements must be generous without excessive control forces coming into action when the maximum side play is called for.

### Comparison of Loading Gauges

A comparison of loading gauges for British Railways and the 3-ft. 6-in. system of the South African Railways, as shown in Fig. 1, gives 13 ft. 6 in. and 13 ft. respectively as the maximum permissible height of the engine, but the former has a width of only 9 ft. above platform level, while the South African Railways can build up to 10 ft. The greater increase of width naturally means a bigger overhang for all parts supported on the engine framing, assuming the latter to come within the wheels, and calls for careful detail design where tank-engines are involved. Fig. 2 shows, to the left of the vertical centre line, a typical relation of tank to frame for a British Railways side tank engine, and, to the right of the line, that for a South African unit of similar type assuming plate frames in each case.

The outrigger brackets are of necessity longer, where these are carried by the frame, and, assuming equal loads, naturally will have to be stronger, though probably of lighter design to suit the restricted axle-loading. Despite the fact that the greater width permitted by the loading-gauge increases the capacity of the train vehicles, this increased overhang has a restricting influence on the train speed, which, when associated with the smaller coupled wheels of the narrow-gauge locomotive and the frequency of curves, explains the normally lower average operating speed of these lines.

The need for lower speeds is also due to a further factor, namely, the smaller base which the narrow-gauge provides to resist overturning, and Fig. 3 shows a comparison for 3 ft. 6 in., 4 ft. 8½ in., and 5 ft. 6 in. lines. Many systems are functioning on much smaller gauges than 3 ft. 6 in., those for 60 cm. (1 ft. 11½ in.), and 2 ft. 6 in. being fairly numerous, and most successful in service. The boiler constitutes a big proportion of the mass tending to over-

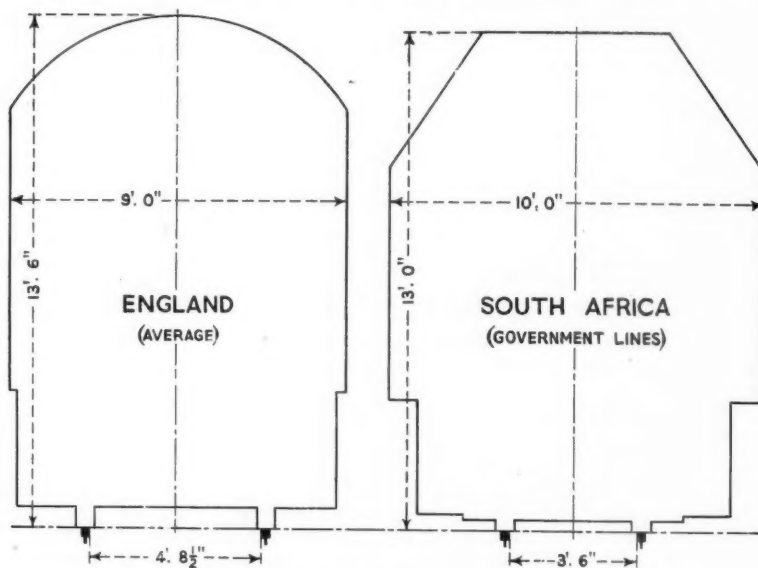


Fig. 1—Loading gauges for British Railways and South African Railways

gauges. Road beds do not permit so great an axle-loading as do those for the standard and broad gauges; loading gauges are usually much more restricted; and space in every direction—transversely, vertically, and even longitudinally—is equally so. Power demand is often to the limit available with the axle-loading allowed, and to attain this, wheel diameters are kept as small as possible, causing the designer further anxiety in the direction of road clearances.

Although the factor of adhesion remains more or less common to that available for the broader gauges, lighter rails restrict the coupled axleloads considerably, even the 3 ft. 6 in. gauge section of the South African Railways rarely carrying much greater axleloads than 13/14 tons, except in the case of the "15F" class locomotives which reach as high as 18½ tons. An interesting ratio for comparative purposes is the total engine weight in tons divided by the length of the complete wheelbase in ft., i.e., the w./ft. run; the heaviest narrow-gauge unit seldom goes much beyond 2 to 1 although the South African Railways "15F" class locomotive reaches a limit of 3 to 1.

A further interesting ratio is that of the adhesive loading to the coupled

motive referred to, which is an exceptionally high value for narrow-gauge engines.

As curves are much sharper on smaller gauge lines—largely due to the

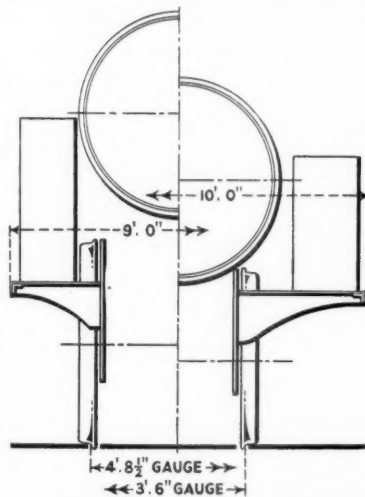


Fig. 2—Relative half-sections through a side-tank locomotive for British Railways and South African Railways

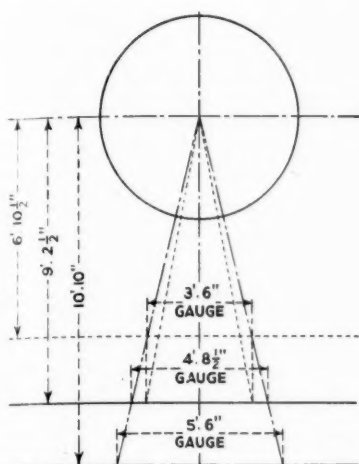


Fig. 3—Relative boiler heights for 3 ft. 6 in., 4 ft. 8½ in. and 5 ft. 6 in. gauges

turn the engine where a tender is provided, and if we assume a boiler centre height of 9 ft. 2½ in. for the standard-gauge and *pro rata* for the others, one would expect a boiler height of 6 ft. 10 in. approximately for the 3 ft. 6 in. gauge, and for the 5 ft. 6 in. gauge it could safely go up to 10 ft. 10 in.

This is an important factor in modern locomotive design, since play on the bearing springs, improved by a satisfactory height of boiler mass, eases the strains on the framing as well as the track, but it is a factor of which full advantage is not attainable on the standard and broad gauges owing to the

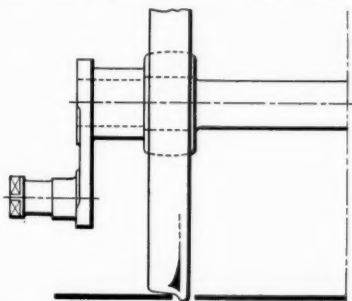


Fig. 4—Flycrank attachment to axle on a 3-ft. gauge locomotive

loading-gauge restrictions. Although the height shown for the 3 ft. 6 in. gauge, Fig. 3, is about 6 ft. 10½ in., and corresponds fairly closely to the dimension worked to in many designs, the South African Railways "15F" class locomotives, certainly masterpieces in narrow-gauge locomotive design and operation, have a boiler height of 9 ft. 2½ in., which suggests that a higher limit is possible for the broader gauges than the loading-gauge will allow.

The radius of the crankpin boss in the wheel, or, where inside wheels are fitted, the flycrank, often is determined in narrow-gauge engines in relation to the wheel diameter on the tread, and, being equal to half the stroke, it is often necessary to limit the piston-stroke to

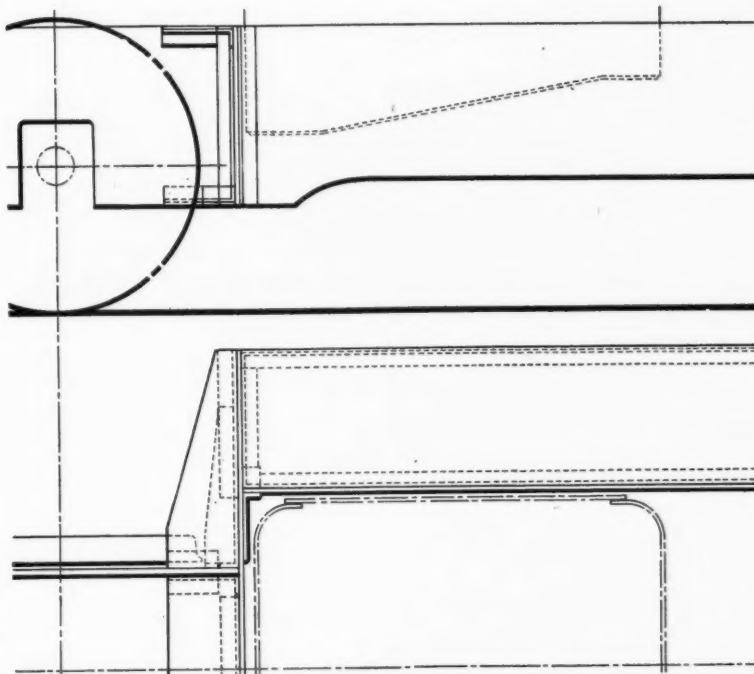


Fig. 5—"Broken" type of framing, steel plate construction

half the coupled wheel diameter to ensure safe road clearances and so protect the rods from obstructions on the track.

The Nigerian Railway 3-cylinder engine already referred to transgressed this value slightly, the coupled wheels being 4 ft. 6 in. dia., and the piston stroke 28 in. Not only are the road clearances thus restricted, but balancing becomes difficult even for the revolving

weights, in driving wheels of such small diameters, the remaining coupled wheels having to take a share of the unbalanced masses.

#### Cost of Lubricating Oils

An unavoidable accompaniment of small, or relatively small, driving wheels appears to be an increase in cost of lubricating oils and greases for the

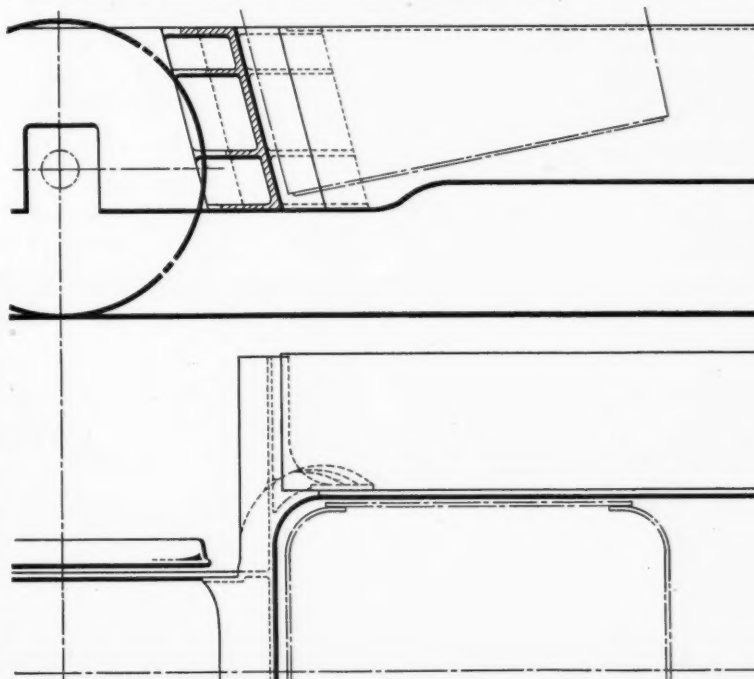


Fig. 6—"Broken" type of framing, single steel casting

narrow-gauge engine, partly due to the closer proximity of the running gear to the dust and grit of the track, and partly to the greater journal surface swept through per mile. The latter can be shown arithmetically and the two examples given below for fast passenger engines are normal illustrations so far as the proportions quoted are concerned:—

Gauge	...	3 ft. 6 in.	4 ft. 8½ in.
Rail load, tons	...	13	20
Dead weight, tons	...	3	4
Live loads, tons	...	10	16
Journal load, lbs.	...	11,200	17,920
Load factor, lbs. per sq. in.	...	224	224
Journal projected area, sq. in.	...	50	80
" dia., in.	...	7	8½
Coupled wheel dia., in.	...	54	80
Rev. per mile	...	373	252
Journal surface swept per mile, ft.	...	683	577

showing an increase of nearly 20 per cent. against the narrow-gauge engine.

In narrow-gauge locomotive design,

however desirable inside cylinders may be, and multi-cylinder units have undisputed advantages, it is extremely difficult to accommodate a single cylinder between the frames, while the two cylinders which would be required for a 4-cylinder engine are quite impossible, assuming proportions that could be regarded as of greater value than a corresponding 2- or 3-cylinder unit would afford.

Three-cylinder engines have been built for sub-standard gauges—the Malayan Railway (metre gauge) and the Nigerian Railway (3 ft. 6 in.) have them—but apart from the difficulty of cylinder accommodation, costs are heavier in these units from the maintenance point of view than where more generous access is available. Crankaxle design for locomotives on the standard-gauge is

not always easy, having regard to the thickness of crank webs and good proportions for bearings, but this can become a nightmare for the narrow-gauge locomotive designer.

The life of coupled springs will be greater for most standard and broad-gauge engines, and their action sweeter by virtue of the underslung location commonly adopted, and the measure of lubrication which the spring plates derive from the axle journals overhead. However, these benefits are difficult to obtain on narrow-gauge locomotives because of the relatively small size of driving wheels, and the overhead spring position is, therefore, almost universal on these units.

This situation has minor advantages, the springs being well away from any track obstruction such as rocks and

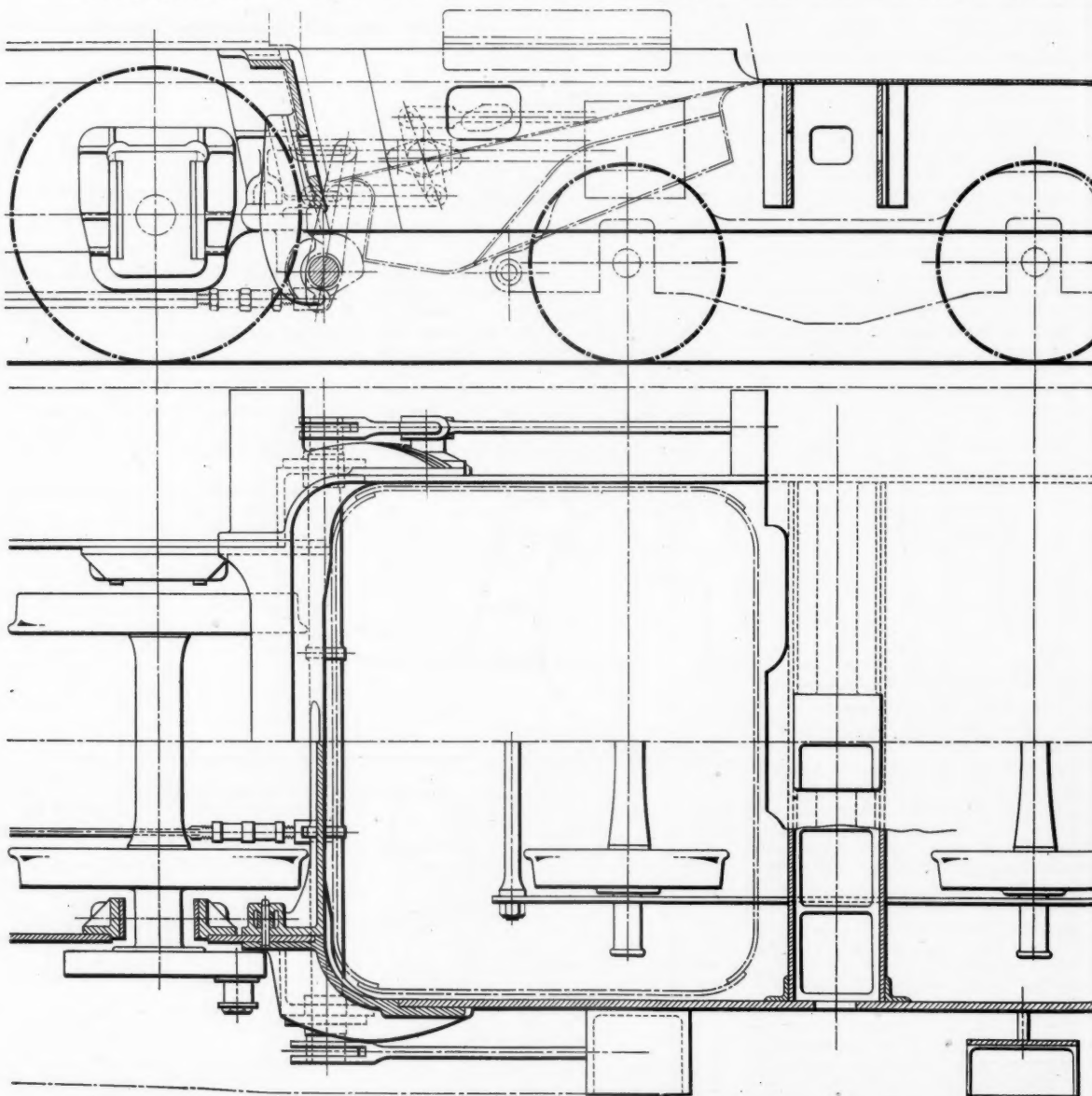
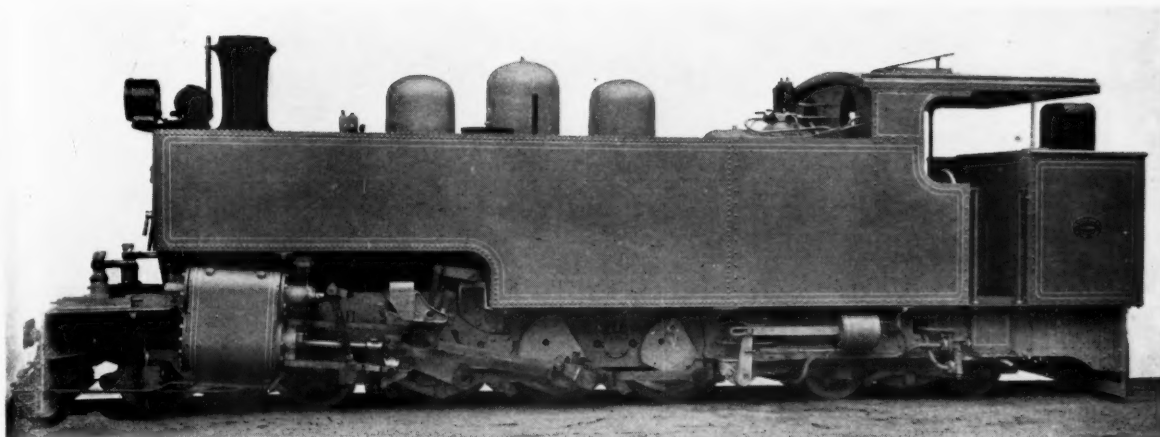


Fig. 7—"Broken" type of framing, separate steel castings, as for Kelani Valley engines, Hunslet Engine Co. Ltd.





*Kelani Valley line, Ceylon, 4-6-4 side tank locomotive (Hunslet)*

other fouling debris, but they are subject to attack from rust in the above-the-axlebox position, and, notwithstanding most careful maintenance, they rarely escape this handicap, their riding qualities suffering in consequence.

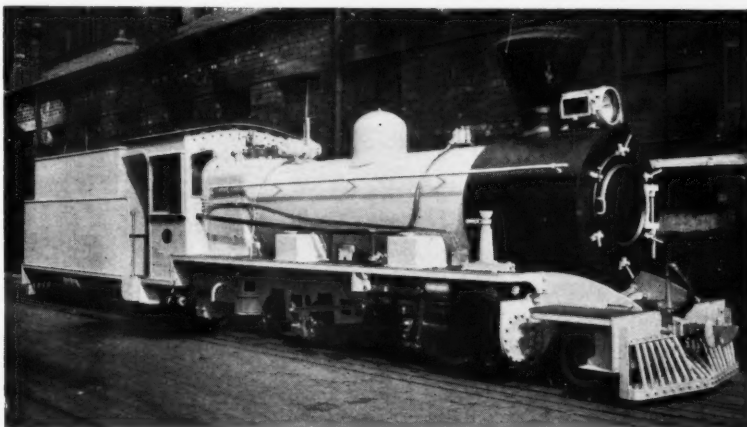
#### Outside and Inside Frames

Where a designer decides to provide outside frames, coupling rods will drive through flycranks, and it is sometimes impossible to obtain the desired area on the axle for the main bearings. In such a case the alternative adopted is to arrange for the flycrank to have the bearing formed on the inner boss as shown in Fig. 4. Such a scheme gives a good arrangement, provides ample bearing surfaces with no risk in the ordinary way of hot boxes, and affords a secure attachment between axle and flycrank. The outside frame design tends to make the engine somewhat wider than is usual for the narrow gauges, and is inevitably a more costly design, though it affords the advantage of a much wider firegrate than is normally possible.

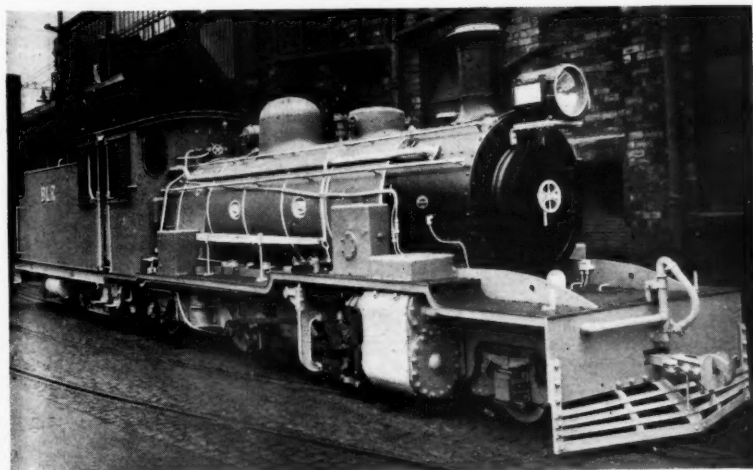
Where wide grates are to be provided and the inside frame is to be

adopted, the "broken" design of frame, Fig. 5, will be adopted. In this case the width between frames steps up behind the trailing coupled axle from that normal to the gauge necessary to accommodate the firebox width. Where the

two meet, the construction may be achieved by a transverse steel plate of suitable depth and thickness, reinforced by plate and angle stiffeners, Fig. 5, or by a steel casting as in Fig. 6. The latter is more satisfactory, but involves



*2-8-2 locomotive for Eastern Province Cement Company, South Africa (Hunslet)*



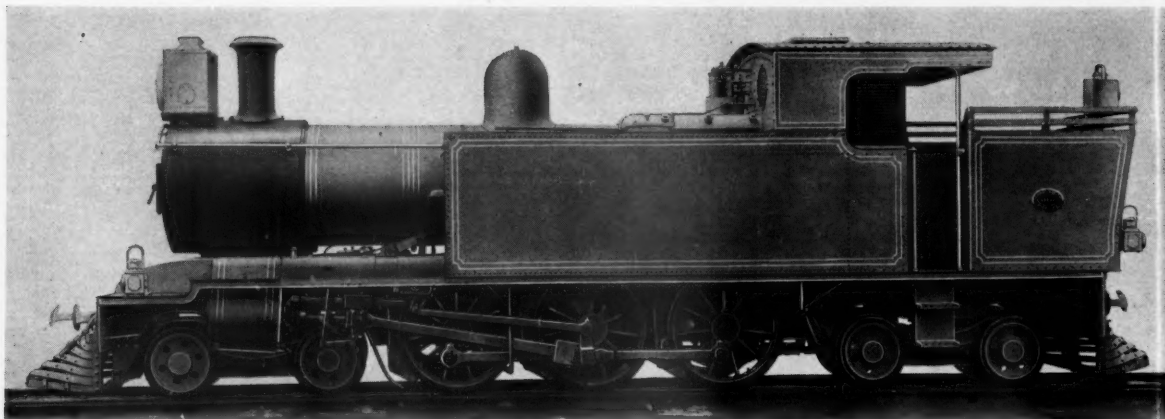
*2-6-2 locomotive for Barsi Light Railway (Hunslet)*

a complicated steel casting, especially if the firebox throat plate is inclined, Fig. 6.

Many engines using the latter form of construction are in service, while in some cases to avoid the complicated casting, three separate castings are used (Fig. 7), the only drawback in this case being in the two bolted joints. Even here, however, considerable advantage is obtained in the simpler castings and the ease of machining.

#### Power Sanding

Still another section in which difficulty is experienced lies in the application of power sanding to small coupled wheels. The problem is minimised somewhat by the mounting of the sandboxes on the top of the boiler whereby a better flow for the sand is thereby obtained. The piping of the outflow with its ejector can still give the draughtsman a good deal of trouble



4-6-4 locomotive for British North Borneo Railway (Hunslet)

and especially with small wheels and a severely restricted wheelbase.

The entire scheme of pipes on engines for the smaller gauge lines—2 ft. 6 in. and under—calls for very careful attention, and especially where the pipe lines run near bogies or trucks, as it is possible for the front of a narrow-gauge 2-8-2 locomotive to be on one section of an ogee curve and the trailing end on the reverse bend. Engines of this type should be narrowly watched to ensure absolute freedom from fouling under all conditions of curving, as serious mishaps have been traced to feed or brake pipes broken from this cause.

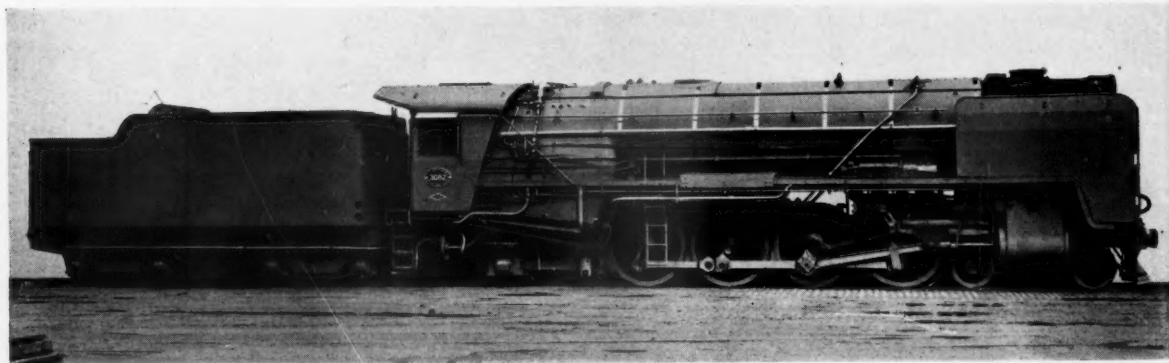
Several examples are shown in the accompanying table of narrow-gauge engine design and leading data. The Kelani Valley line, Ceylon, 4-6-4 tank-engine has proved a successful type, and the subject of several repeat orders. This engine is one of the exceptions which prove the rule, in so far as the main bearing spring location is concerned, these being placed below the axleboxes, chiefly on account of the difficulty of access to overhead springs in a tank-engine for so small a gauge.

Piston valves and superheaters have been fitted to the later engines of this class—including that shown—and the

relatively large grate area, one result of the "broken" design of frame, gives an excellent steaming engine. Sand-boxes are carried on the boiler in front of and behind the steam dome.

Other interesting designs include the 2-8-2 type engine for the Eastern Province Cement Company, this being a good example of a unit for the 2 ft. gauge, while the Barsi Light Railway (2 ft. 6 in. gauge) 2-6-2 type engine has proved a useful addition to the various classes already in operation. The flattened outer profile of the cylinders on the Eastern Province Cement

(Continued on page 77)



4-8-2 "15F" class locomotive for South African Railways, North British Locomotive Co. Ltd.

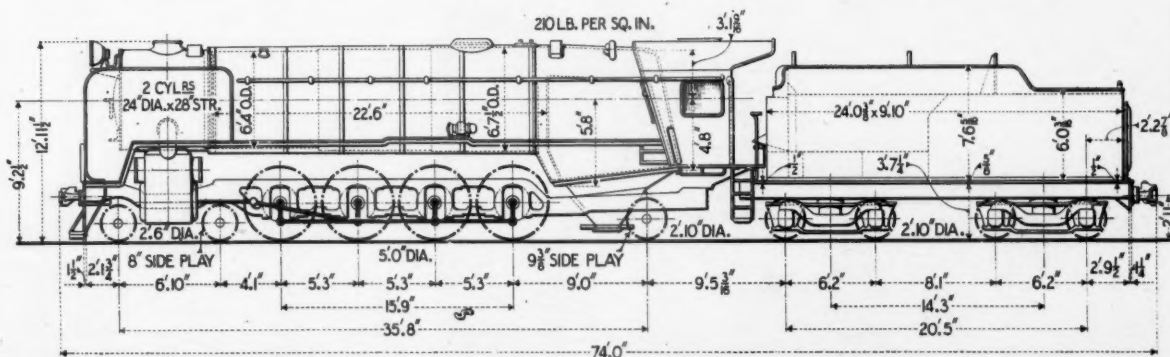


Diagram of "15F" class locomotive for South African Railways, showing principal weights and dimensions

## RAILWAY NEWS SECTION

## PERSONAL

Mr. J. Binsted, Chief Mechanical Engineer, New Zealand Government Railways, has retired, and has been succeeded by Mr. R. F. Black, formerly Assistant Chief Mechanical Engineer.

Mr. A. F. Bruyns-Haylett, B.Sc., M.I.C.E., M.Inst.T., Chief Civil Engineer, South African Railways, who, as recorded

Mr. H. G. Ivatt, lately Chief Mechanical Engineer, London Midland Region, British Railways, has accepted a seat on the board of Brush Bagnall Traction Limited, and will be available to that company as Technical Consultant on diesel-electric locomotives.

The Minister of Transport has approved the appointment of Mr. M. A. Cameron, who has been nominated by the British

Mr. O. R. Spyker, Chief Works & Estates Officer, South African Railways, who, as recorded in our May 11 issue, has been appointed Chief Civil Engineer, graduated as B.Sc. (Civil Engineering) at the University of Cape Town, South Africa, in 1913. Towards the end of 1914 he proceeded on active service in South West Africa, Egypt and France, where he was a member of the South African Infantry Brigade until severely wounded in



*Mr. A. F. Bruyns-Haylett*  
Chief Civil Engineer, South African Railways,  
1950-51



*Mr. O. R. Spyker*  
Appointed Chief Civil Engineer,  
South African Railways

in our May 11 issue, has retired, was born at Lakeside, Cape Town, in 1891, and was educated at Elstow School, Bedford, England, and took a degree in Civil Engineering at the South African College, Cape Town, in 1913. He joined the South African Railways in 1914 and served in various engineering grades on survey, construction, and maintenance until 1936, when he was appointed Chief Works & Estates Officer. In 1942 Mr. Bruyns-Haylett became Acting System Manager at Windhoek and he returned to the Chief Civil Engineer's Department as Inspecting Engineer in 1943. During 1945, and in the two succeeding years, he acted as Assistant Chief Civil Engineer and he was appointed Research Engineer in 1948. Mr. Bruyns-Haylett became Chief Civil Engineer last year. He has served on various railway committees and was a full member of the Railway Line Revision Commission in 1938-39. Mr. Bruyns-Haylett was President of the South African Institution of Civil Engineers for 1950.

Transport Commission, to be a Member of the Central Transport Consultative Committee, in place of Mr. Miles Beevor, who has resigned. Mr. Cameron is Principal Traffic Officer of the British Transport Commission.

Mr. A. Dalton, General Manager, East African Railways & Harbours, who has been on leave in Great Britain, returned to Africa on July 16.

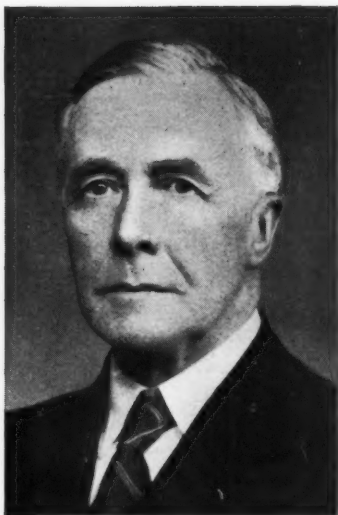
Mr. I. H. El Gamal Bey has retired as Chief Engineer, Way & Works, Egyptian State Railways, but is continuing to assist the General Manager in carrying out the present heavy programme of new works.

Mr. F. L. B. Soar, M.B.E., a Higher Executive Officer in the Ministry of Transport, who had been with the Railway Inspectorate since 1907, has retired. He had been associated with 14 of the 29 Chief Inspecting Officers, who have held that office since its inception in 1840.

April, 1918. In 1921 Mr. Spyker rejoined the South African Railways as an Assistant Engineer on various branch line constructions and continued in that capacity until 1928, when he was transferred to the Maintenance Department at Johannesburg. He was promoted District Engineer, Waterval Boven in the Eastern Transvaal in 1931 and subsequently became System Engineer at Windhoek, South West Africa. Mr. Spyker later became Resident Engineer in charge of New Construction at Pretoria, and was, successively, System Engineer at East London, Durban, and Cape Town, before taking up the appointment of Chief Works & Estates Officer in the Office of the General Manager, Johannesburg, which he has now relinquished.

The London Midland Region has announced the appointment of Mr. J. Pollard, Assistant to District Operating Superintendent, Crewe, as Assistant District Operating Superintendent, London (Midland).





**Mr. J. J. O'Dwyer**

Appointed Commercial Superintendent, Coras Iompair Eireann

Mr. J. J. O'Dwyer, A.M.Inst.T., Chief Clerk to the Commercial Superintendent, Coras Iompair Eireann, who, as recorded in our June 22 issue, has been appointed Commercial Superintendent, joined the service of the Great Southern & Western Railway as a junior clerk at Waterford in 1912. He gained general experience at various stations in the old Waterford District until 1926, when he was transferred to the Traffic Manager's Office and has since been attached to the various sections of the Commercial Department at headquarters. In 1938 Mr. O'Dwyer was appointed Clerk-in-Charge of the Cross Channel Rates & Charges Section and he became Chief Clerk to the Commercial Superintendent in 1942.

Mr. H. W. Franklin was re-elected as President of the National Union of Railwaymen at the annual conference at Hastings last week.

Mr. J. C. Mertens, Deputy Traffic Manager, Iraqi State Railways, is at present on leave and expects to be in Great Britain until September 23.

Mr. J. I. MacKay, General Manager of the Prairie Region, Canadian Pacific Railway, has retired and has been succeeded by Mr. E. S. McCracken.

The Minister of Transport has appointed Professor A. N. Shimmin to be Chairman of the Transport Users' Consultative Committee for the Yorkshire Area. The Minister hopes to appoint the full Committee for the area shortly.

Mr. J. P. A. Meldrum has been appointed Special Assistant, Sales Management, and Mr. J. E. Stubbs, Sales Manager, Switchgear Department, Metropolitan-Vickers Electrical Co. Ltd.

Mr. T. A. McKenna has been appointed Chairman of the Staveley Coal & Iron Co. Ltd. and Sir Arthur Matthews has been appointed a Director in place of Mr. W. Humble, who has resigned.

The International Nickel Company of Canada Limited, has announced the election to the board, of Mr. Lewis W.



**Mr. A. H. Cantrell**

Appointed Assistant Civil Engineer, Southern Region

Douglas, former American Ambassador to the Court of St. James, and Mr. I. C. Raymond Atkin, Vice-President, Director and Member of the Executive Committee of J. P. Morgan & Co. Inc.

Mr. A. H. Cantrell, B.Sc. (Eng.), London, M.I.C.E., District Engineer, Purley, Southern Region, British Railways, who, as recorded in our July 13 issue, has been appointed Assistant Civil Engineer, was on the staff of the Bridge Stress Committee of the Department of the Scientific & Industrial Research from 1924 to 1927. He afterwards joined the staff of the Chief Engineer, Southern Railway, as a draughtsman in the Bridge Office. Mr. Cantrell was appointed Resident Engineer on various bridge reconstruction works and in 1931 returned to the Bridge Office, before being transferred to the Office of the London East Divisional Engineer, in charge of the Permanent Way Section, in 1935; Mr. Cantrell was appointed Engineering Assistant in the same Office in 1939 and carried out investigations into rail welding and blanketing of track. He became Assistant Divisional Engineer, London East, in 1942; Divisional Engineer, London West, in 1946, and Divisional Engineer, London East, in 1947, a position which has since been redesignated District Engineer, Purley. Mr. Cantrell was commissioned in the Supplementary Reserve, R.E., in 1929 and went to France at the outbreak of the recent war. After various appointments in Movement Control he was transferred to railway construction in 1941, and saw service in North Africa, Sicily and Italy. At the time of his demobilisation in 1945 he was Lt-Colonel in command of a Railway Construction Group. Mr. Cantrell was mentioned in dispatches three times, and was awarded the American decoration of the Legion of Merit.

We regret to record the death on July 11, at the age of 71, of Mr. W. J. Davis, formerly a Director of W. H. Davis & Sons (Wagons) Ltd.

Mr. Charles Holt, Deputy General Manager of Thos. Cook & Son Ltd., has been elected Chairman of the Creative Tourist Agents' Conference for the third successive year.



**Mr. A. Shoemack**

Appointed Assistant to Commercial Superintendent, Western Region

Mr. A. Shoemack, Assistant District Goods Superintendent, Paddington, who, as recorded in our June 8 issue, has been appointed Assistant to the Commercial Superintendent, Western Region, entered the service of the G.W.R. at Birmingham in 1907, and gained all-round experience of goods station working during the subsequent 20 years. After serving in the District Goods Manager's Office at Birmingham and the Chief Goods Manager's Office at Paddington, he took charge of the General Office of the Bristol District Goods Manager, and subsequently filled three successive appointments as Chief Clerk at Bristol Goods Station, Paddington Goods Station, and to the London District Goods Manager. In 1946 he was appointed Goods Agent, Brentford, and later Goods Agent, Smithfield, and Assistant District Goods Manager, Birmingham. Mr. Shoemack became Assistant District Goods Superintendent at Paddington in 1949.

Among those who arrived in Britain from Quebec last week in the *Empress of Scotland*, were Sir Eric Gore Browne, formerly Chairman, Southern Railway Company, and Mr. G. H. Baillie, Vice-President, Eastern Region, Canadian Pacific Railway.

Mr. William Jones has been appointed Manager of the Bristol Office of Brookhirst Switchgear Limited, in succession to the late Mr. H. J. Barber.

We regret to record the death on July 10 of Mr. Wm. Maurice, F.G.S., M.I.E.E., Governing Director of the Wolf Safety Lamp Co. (Wm. Maurice) Ltd.

Mr. G. M. Booth, Stationmaster, Liverpool Street Station, Eastern Region, who, as recorded in our June 29 issue, has been appointed Assistant District Operating Superintendent, Stratford, entered the service of the former Great Central Railway as a clerk in the District Superintendent's Office, London, in 1918, and subsequently occupied various positions until 1927, when he was appointed a traffic apprentice. He was appointed Assistant Yardmaster, Spitalfields, in 1932 and Assistant Stationmaster, Liverpool Street, 1935. He became Station-

master at Bethnal Green in charge of Cambridge Heath in 1936, at Ilford in 1937, and at Ipswich in 1940. Mr. Booth was transferred to Norwich in 1941 as Assistant to District Superintendent and held the position of Acting Assistant District Superintendent, Lincoln, from January to November, 1944, when he became Station-master, Liverpool Street Station.

Mr. A. D. Dunn has been appointed a Director of the White Pass & Yukon Railway Co. Ltd.

Mr. J. Judd, who has retired as Stationery Storekeeper, Crewe, for the London Midland Region, was the recipient of a half-hunter watch from Mr. J. O'Neill, Chief Officer (Paper & Printing), Railway Executive, at a presentation ceremony on Thursday, July 12.

We regret to record the death on July 9 of Mr. Thomas Gorton, Assistant (Coal) to the Commercial Superintendent, London Midland Region, Euston Station. He was born in 1890 and entered the service of the L.N.W.R. in 1904 at St. Helens. Mr. Gorton was transferred to Headquarters in 1918 and moved with the Mineral Department to Derby in 1923; he remained there until 1936, when he returned to Euston. He was appointed Assistant (Coal) to the Commercial Superintendent, London Midland Region, in 1942. The interment took place on July 13, at Hindley, near Wigan. Among those present were:—

**London Midland Region:** Messrs. H. G. N. Read, Assistant Commercial Superintendent, also representing Mr. A. E. Hammett, Commercial Superintendent, and Mr. D. Murray, Executive Officer (Mineral Traffic), Railway Executive; L. D. Morgan, Assistant, Mineral Rates, Euston, also representing Mr. R. Paterson, Chief Assistant (Goods), Euston, and Mr. M. H. Sifton, Assistant, Commercial Investigation Bureau, Euston; E. W. H. Powell, District Goods Superintendent, Warrington; J. E. Rigby, District Goods Superintendent, Bolton. Also among those present were: Messrs. A. S. Railston, Assistant Commercial Superintendent (Mineral), Eastern Region, Doncaster, who represented Members of the Mineral Traffic Committee; A. W. Armour, National Coal Board, Manchester; A. B. Bryant, Stephenson Clarke Limited.

#### LONDON TRANSPORT APPOINTMENTS

The London Transport Executive has announced the following appointments:—

Mr. H. W. Brooksbank to be a Principal Executive Assistant, responsible for the fares, ticket ordering, and miscellaneous traffics sections of the Commercial Manager's Office.

Mr. A. J. Spong to be Principal Accounts Assistant (General), responsible to the Accounts Officer for all accounting for capital and special expenditure, financial reporting, and the accounts payable section of the Accounts Office.

Mr. C. F. W. Saunders to be Principal Accounts Assistant (Accounts) responsible to the Accounts Officer for all central accounting work (except that relating to capital expenditure) and for the accounts receivable section of the Accounts Office.

#### Department of C.M.E. (Railways)

Mr. R. I. D. Arthurton, to be a Principal Executive Assistant with control, in the development division of all work in connection with contracts for rolling stock and associated equipments, as well as all internal and external inspection work of the Department.

Mr. Frank Dickson, Chief Draughtsman in the development division, to be a Principal Executive Assistant.

## The New Starnberger Station, Munich

*Successful rebuilding of a busy terminus for local services*

In our March 2 issue, we illustrated the exterior of the reconstructed Starnberger Station which adjoins the main station at Munich. The new station has recently been described in several German journals, among them *Der Eisenbahnbau*, of March, 1951, from which the following particulars are extracted.

The Starnberger Station, as a special wing of the main station dates back to 1892-93 when a somewhat shabby, wooden temporary building was erected for trains to Starnberg and Garmisch-Partenkirchen. Shortly before the 1914-18 war the construction of a permanent building was begun, but, due to the war and postwar difficulties, was not completed until April 30, 1921. It consisted of a high, arched booking hall with somewhat lower wings, and a transverse concourse connecting the ends of the terminal platforms. No attempt was made to blend the building with the main station.

During the 1939-45 war, the building was almost totally destroyed. Office accommodation was improvised but there was hardly any weather protection for passengers. Because of the importance of the Starnberger line for the tourist traffic to Oberammergau and the alpine holiday resorts, the reconstruction of the station was given priority; it was completed in time for the introduction of the 1950 summer timetable.

#### Layout of Station

Architecturally, the main feature of the new building is its deliberate subordination to the main station; this feature will be even more apparent when the main station itself has been rebuilt. The layout of the new station has been largely governed by the economic need to use the old foundation walls where still standing; besides, there was no urgent necessity to depart in principle from the original layout. However, a radical alteration was made in the

height of the building which has now a flat roof, surmounted by two oblong clerestories which admit daylight to the booking hall and concourse, respectively, and can also be seen from the street. An interesting contrast has thus been created between the heavy brick walls and strong columns of the porch on the one hand, and the rather light roof structure on the other hand. The roof is constructed in steel, with a cover of reinforced pumice stone concrete boards and two layers of wool felt. Aluminium sheeting has been used for joints, grooves, and gutters.

The booking hall has a floor area of about 56 ft. by 115 ft. but is only 20 ft. high. The glass roof obviates a feeling of narrowness. Also, the door openings at either end are of ample width and almost entirely glazed. The booking counters are fitted with glass walls, "speaking membranes," and rotating plates for the ticket purchase transaction. The counters as well as the numerous sales kiosks are in a uniform style.

The booking hall is flanked by another hall of equal height which contains the station restaurant and a small cafe. The ancillary premises are housed in the basement, just below street level. Whilst the steel structure of the booking hall is camouflaged by a false ceiling, the welded steel girders of the transverse concourse remain visible throughout. The steel columns are hollow, the cavities being used for the heavy counterweights needed for the tensioning of the electric overhead traction wire. The platform roofs are only 66 ft. long but they will be extended later.

Among the many interesting detailed features of the new station are an efficient use of fluorescent lighting, the use of destination boards with different colour shades for the different suburban lines, and plexiglass timetable indicators with interior lighting.

## Narrow-Gauge Locomotive Design

(Concluded from page 74)

Company 2-8-2 locomotive is an example of the difficult task the designer had of keeping the engine within the loading-gauge, and a study of the proportions of these engines shows that the power available is by no means trifling. In contrast to the units already referred to is the 4-6-4 tank-engine built for the British North Borneo Railway; this has a main-line appearance despite its

modest dimensions and the fact that it operates on the metre-gauge.

Perhaps the best example of narrow-gauge design is found in the "15F" class engines built for the 3 ft. 6 in. section of the South African Railways illustrated in the diagram on page 74. Attention has been directed to the abnormal—for this gauge—height of the boiler centre in this design; the massive proportions of boiler and cylinders and the high adhesive loading also demand consideration.

	Kelani Valley line (Ceylon)	E. Province Cement Co. (S. Africa)	Barsi Light Rly. (India)	British North Borneo Rly.	S. African Rlys. ("15F" class)
Gauge	2 ft. 6 in.	2 ft.	2 ft. 6 in.	Metre	3 ft. 6 in.
Type	4-6-4	2-8-2	2-6-2	4-6-4	4-8-2
Cylinders, dia. and stroke	14 in. x 20 in.	13½ in. x 18 in.	15½ in. x 18 in.	11 in. x 18 in.	24 in. x 28 in.
Coupled wheels, dia.	3 ft.	2 ft. 9 in.	2 ft. 10 in.	3 ft. 6½ in.	5 ft.
Steam pressure, lb. per sq. in.	160	180	160	180	210
Heating surface, sq. ft.	816	950	1,065	480	4,076
Grate area, sq. ft.	19	15.5	20.5	10.75	62.5
Tractive effort, lb.	13,066	13,420	15,270	6,918	47,980
	75 per cent. b.p.	75 per cent. b.p.	75 per cent. b.p.	75 per cent. b.p.	85 per cent. b.p.
Adhesive load	25 tons 8 cwt.	24 tons	27 tons	18 tons	74 tons.
	2 qrs.				
Factor of adhesion	4.35	4	3.96	5.83	3.45
Total engine weight	48 tons 7 cwt.	34 tons	38 tons 10 cwt.	33 tons 16 cwt.	112 tons
	2 qrs.		2 qrs.	3 qrs.	

# British Transport Commission Statistics (Period No. 5)

Summary of the principal statistics for the four-week period ending May 20

## STAFF

	B.T.C. Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial & Scottish)	Hotels & Catering	Ships & Marine	Inland Waterways	Docks, Harbours, Wharves	Railway Clearing House	Commer- cial Adver- tisement	Legal	Films	Total
Number ...	250	599,519	99,264	78,097	60,090	18,329	6,479	4,869	20,047	648	203	290	36	888,121
Inc. or dec.	-2	+617	+229	+293	+416	+307	+231	-2	+85	-7	-5	-	+2	+2,164

## BRITISH TRANSPORT COMMISSION TRAFFIC RECEIPTS

	Four weeks (Period No. 5)		Aggregate for 20 weeks	
	1951	1950	1951	1950
	£000	£000	£000	£000
British Railways—				
Passengers ... ..	8,093	7,428	33,850	34,787
Parcels, etc., by passenger train	2,592	2,274	12,160	10,826
Merchandise ... ..	7,622	6,503	36,145	31,428
Minerals ... ..	2,774	2,459	13,296	11,827
Coal & coke ... ..	7,014	5,789	34,024	27,785
Livestock ... ..	82	84	380	459
	28,267	24,537	129,855	117,112
British Railways—				
C. & D. and other road services	804	710	3,811	3,386
Ships and Vessels ... ..	782	729	3,197	2,897
London Transport—				
Railways ... ..	1,265	1,122	6,088	5,553
Buses & coaches ... ..	2,661	2,432	12,178	11,623
Trams & trolleybuses ... ..	773	839	3,744	4,081
	4,699	4,393	22,010	21,257
British Road Services—				
Freight charges, etc. ... ..	5,942	4,791	28,523	22,134
Road Passenger Transport ... ..	3,236	2,752	14,332	12,819
Docks, Harbours & Wharves ... ..	1,050	885	4,739	4,313
Inland Waterways ... ..	137	127	637	585
Hotels & Catering ... ..	1,236	1,090	5,626	5,172

## LONDON TRANSPORT

	Passenger journeys	Inc. or dec. per cent. over 1950	Car miles	Inc. or dec. per cent. over 1950
	000		000	
Railways ... ..	49,801	— 1.2	17,869	— 1.1
Buses & coaches ... ..	227,910	+ 4.9	25,762	+ 6.0
Trams & trolleybuses ... ..	76,769	— 16.3	7,534	— 12.1
Total ... ..	354,480	— 1.3	51,165	+ 0.4

## INLAND WATERWAYS Tonnage of traffic and ton miles

—	Tonnage	Inc. or dec. per cent. over 1950	Ton miles	Inc. or dec. per cent. over 1950
Coal, coke, patent fuel & peat	000		000	
Liquids in bulk ... ..	450	— 6.1	6,465	— 12.2
General merchandise ... ..	163	+ 14.9	4,063	+ 25.8
	342	+ 4.6	5,324	— 0.3
Total ... ..	955	+ 0.7	15,852	— 0.5

## BRITISH RAILWAYS Rolling Stock Position

	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1950
Locomotives ... ..	19,466	3,102	15,782	15,813
Coaching vehicles ... ..	57,894	5,256	52,638	52,266
Freight wagons ... ..	1,109,660	76,971	1,032,698	1,013,695

## BRITISH RAILWAYS Passenger Journeys (Month of March, 1951)

Full fares	Monthly returns	Excursions, cheap day, etc.	Other descriptions	Workmen	Season tickets	Total	Inc. or dec. per cent. over 1950
6,164,000	10,062,000	18,305,000	3,955,000	18,082,000	19,346,000	75,914,000	+ 0.1

## BRITISH RAILWAYS Freight Tonnage Originating and Estimated Ton-Miles (Period No. 5)

—	Minerals	Merchandise	Coal & coke	Livestock	Total	Inc. or dec. per cent. over 1950
Tons originating ...	000 4,560	000 4,088	000 12,821	000 60	000 21,529	— 4.2
Ton-miles ...	386,361	535,768*	815,142	—	1,737,271	— 1.9

\* Includes livestock

## BRITISH RAILWAYS (Period No. 5)

	Total steam coaching train-miles	Total electric coaching train-miles	Total freight train-miles	Freight train- miles per train engine-hour	Net ton-miles per total engine-hour	Locomotive coal consumption	
						Total tons	Lb. per engine-mile
1951 ... ..	14,333,000	3,731,000	10,761,000	8.5	606	1,034,000	62.5
1950 ... ..	14,327,000	3,716,000	11,215,000	8.7	600	1,045,000	61.8



## Ministry of Transport Accident Report

Wortley West Junction, North Eastern Region,  
British Railways: December 2, 1950

Brigadier C. A. Langley, Inspecting Officer of Railways, Ministry of Transport, inquired into the accident which occurred at 9.16 p.m. on December 2, 1950, at Wortley West Junction, near Leeds, when the 8.50 p.m. Eastern Region train, Bradford to Leeds, consisting of a Class "N.1" 0-6-2 tank engine running bunker first and three coaches, which had been allowed to enter a block section irregularly, ran at 30 m.p.h. into the 8.42 p.m. London Midland Region train, Low Moor to Leeds, consisting of a Class "4P" 2-6-4 tank engine, also running bunker first, and six coaches, which had likewise been admitted to the section irregularly and had drawn forward from the home signal to the box to pick up the fireman.

There were five passengers in the first and three in the second train, of whom six were taken to hospital, two being detained with serious injuries. The guard of the leading train was injured and detained, and four other railway servants were treated for shock. There was a good deal of damage to stock and to the engine of the colliding train, but little to the track, although the up and down main lines were blocked and the adjacent goods lines temporarily obstructed. It was a clear night, very cold and frosty. The diagram on page 80 shows the lines, signals, and other details essential to an understanding of the case.

The view of the home signals from Armley is slightly obstructed by the tunnel, and Brigadier Langley, travelling on a Class "N.1" locomotive under similar conditions, with no smoke in the tunnel, found that some of the signal lights could be seen from Armley Moor Station nearly 1,000 yd. away, but were not properly defined until a train emerged from the tunnel at 550 yd. A tail light had been placed where the rear coach of the 8.42 train had stood, but it was difficult to distinguish amidst the group of other red lights, and at first appeared to be a ground signal. It only stood out clearly from the others at 100 yd., by which time the driver might well have been looking out for the starting signal ahead, just coming into view.

### Evidence

Cold and frost had prevented No. 34 signal arm from going to danger behind a freight train at 8.53 p.m., and the signalman decided to go down to the post itself, but before doing so gave "out of section" for that train and telephoned to Armley about what he proposed to do. This was just before 9.0 p.m. Shaking the wires at the signal having no effect, he returned, and by working the lever several times got the signal to go to danger. While doing this he received "is line clear?" for the 8.42 train and correctly refused it. Crossover 38 was still reversed, and after getting signal 34 to danger the signalman found 37 locking bar held fast.

The Armley signalman, however, seems to have got the strange impression from this conversation that it would be all right to allow the 8.42 train to go forward, and he cleared his signals for it. It arrived at Wortley West home signal at 9.6 p.m. The signalman, surprised at this, did not send "obstruction danger" and place his block instrument at "train on line" in accordance with Regulation 12, but spoke strongly to Armley by telephone about this

irregularity, adding that he had got his "points across" and it was impossible to do anything. The Armley man merely replied "right" or something equivalent, but did not explain his action. The Wortley West man then spoke to the controller and asked for a lineman to be sent for.

The signalman at Armley denied receiving any strongly worded message about this train and thought it was to the effect that Wortley West was all right on the main line, and, although he had exchanged no regulation block codes for that line booked "line clear," "train on line," and "train out of section" as having been dealt with for the train. At 9.6 p.m. he accepted the second train from the signal box in the rear. He offered it to Wortley West and it was correctly refused by that box. Difficulties were still being experienced with the locking bar there. At 9.9 p.m. that box decided to allow a light engine to traverse crossover 39, and it stopped next to 27 ground signal, shortly after which the fireman of the 8.42 p.m. train came into the box in accordance with Rule 55. Armley continued to offer the 3 pause 1 bell signal. When 37 locking bar and points 38 were normal again, Wortley West accepted it, thinking it to be meant for the 8.42 train that had never been dealt with properly on the block.

On his giving "line clear" "entering section" was received at once and the block placed at "train on line." He took this to be the completion of the signals for the train which had been sent forward to him irregularly and did not telephone to Armley to verify the position. He lowered the home signal to allow the train to come forward to pick up the fireman, and on obtaining "line clear" from Wortley East cleared his starting signal. A moment or so later he saw the other train coming "pell mell." The Armley signalman had taken the exchange of bell signals to apply to this—the second—train and without considering the implication of these irresponsible actions allowed it to go. Both men admitted their mistakes. The Wortley West man thought that his refusing the train initially would make it impossible for anything to be offered on top of it and never realised that his final acceptance could be taken as referring to another train. The other signalman could offer no adequate explanation of his action.

The section controller at Leeds confirmed the telephone messages between the two signalmen, but thought the first was not until 9.10 p.m., when Wortley West told Armley that the signal had been got to go back to danger, but he was still fast with the bar. He learned from this man which way the crossover was then set and that a lineman was required, and he asked Armley to call one. A few minutes later Wortley West asked to speak to Armley and sounded very angry when asking what the other man meant by sending the first, or 8.42 p.m. train on irregularly. He heard Armley admit to knowing that Wortley West had the road fast and said that that man remarked that he thought it was "all right to let him down." The controller could not recollect any other conversation between the two, and had his head phones on all the time.

There was no conflict or ambiguity about the trainmen's evidence. The driver of the colliding train did not notice any

tail lamp nor the obstruction until within a few yards of it. Seeing the home signal at green he was directing his attention to seeing the starting signal ahead. The fireman did not see any tail lamp, nor the other train until the last moment. The man in charge of the light engine above mentioned saw both Wortley West home signal and the distant under it off after the accident.

### Inspecting Officer's Conclusion

Responsibility rests primarily on the signalman at Armley, who broke fundamental rules of block working and sent the 8.42 p.m. train away without getting "line clear" for it. His excuse that he misunderstood the message is unacceptable. He made false entries in his register and kept offering the train after it had left, in the hope that it would be accepted and so clear his position. His further action was equally irresponsible. He had no justification for accepting the second telephone message as an indication that the train had passed into the section ahead and should never have offered the second one until he had made certain that there had been no misunderstanding about the first. He had had 3½ years' experience as a signalman with a clear record, but his behaviour shows him to be unfit for such responsible employment. Brigadier Langley understands that he has resigned from railway service.

The Wortley West signalman also must accept some responsibility. Having tacitly accepted the arrival of the first train by his failure to send "obstruction danger" he should never have acknowledged "is line clear?" from Armley until the 8.42 p.m. train had passed into the section ahead. He has been a signalman for nine years with an exemplary record, but had been working under some difficulty owing to the failures of the points and signals. The action he took to overcome his troubles was commendable, but that does not excuse his serious breach of the Regulations.

Brigadier Langley is satisfied that none of the trainmen bears responsibility for the collision. Although the tail lamp would have been visible as soon as a train emerged from the tunnel, neither driver nor fireman can be criticised for failure to observe it until too late. The driver was naturally looking for the starting signal, just coming into view, and the lamp might easily have been missed amongst the group of other red signal lights.

### Remarks

This accident would have been prevented by a simple form of "line clear" block control, but there are still so many places where this and other safety devices are more urgently required that it cannot be recommended at present. The British Transport Commission stated in its 1948 report that a comprehensive six years' programme for modernisation of block controls and provision of track circuits was being initiated, but in its 1949 report gave the warning that the restriction on capital expenditure would necessarily hinder its execution. The need for accelerating rather than retarding it is emphasised by this discreditable failure to carry out fundamental block regulations, on which safety so largely depends. It is by no means an

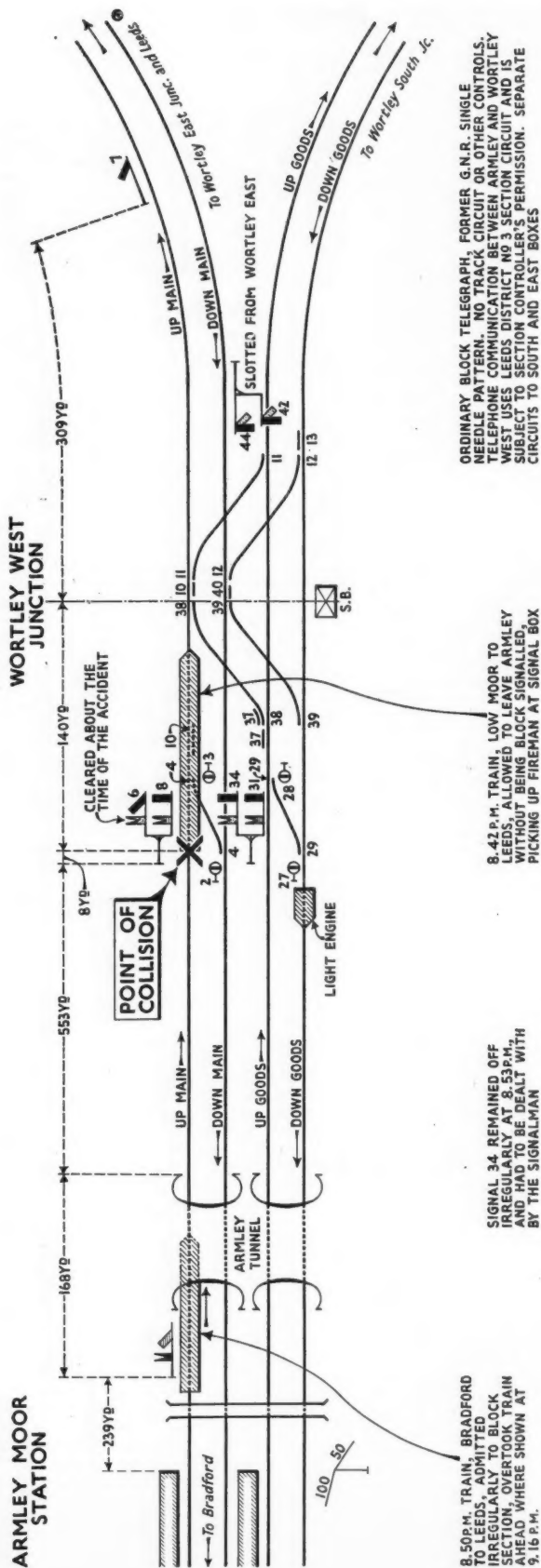


Diagram illustrating circumstances of the accident at Wortley West Junction, North Eastern Region, on December 2, 1950

isolated case. In addition to the serious negligence at Whitehouse West Junction, referred to in the report dated October 4, 1950, summarised on page 189 of our issue for February 16, 1951, other instances of signalmen's errors have been brought to notice in recent months. They seem to suggest that the reliability and discipline of some signalmen is not all that might be desired.

All signalmen, even in junior grades, are in a position which requires a high sense of responsibility; unless, therefore, the right type of man is attracted to the service and the discipline and morale of signalmen as a whole are maintained at the standard expected in the past, more expenditure on safety equipment will be needed to prevent inevitable failures of the human element.

### Locomotive Named "Mayflower"

In commemoration of the association which Boston, Lincolnshire, has with the Pilgrim Fathers, the Railway Executive, in collaboration with the English Speaking Union, considered it fitting, in the Festival Year 1951, to give the name *Mayflower* to a locomotive. A new engine of the "B1" class, No. 61379, was selected; this is to work regularly in the Eastern Region between Kings Cross and Boston, and will serve as a symbol of the bond that links that town with Boston, Massachusetts, and also provide some acknowledgment of the bond which links Britain with the U.S.A.

On the invitation of Mr. C. K. Bird, Chief Regional Officer, Eastern Region, who presided, Commander Harold L. Goodwin, U.S. Navy, unveiled the nameplate of No. 61379, which he named *Mayflower*, at Kings Cross on July 13, immediately before departure of the 4 p.m. train to Grimsby, which was conveying participants in the 1951 American Pilgrimage to Boston.

Others present on this occasion included:

Sir Harry Brittain, Member of the Advisory Council of the English Speaking Union; Mr. Gilbert Carr, Chairman of the American Chamber of Commerce, London; Councillor J. P. Roe, Mayor of Boston, U.S.A.

Railway Executive: Mr. D. S. M. Barrie, Public Relations Officer.

Eastern Region: Messrs. A. J. White, Assistant Chief Regional Officer; C. Dandridge, Commercial Superintendent; E. W. Rostern, Operating Superintendent; H. C. Johnson, Divisional Operating Superintendent (Western); L. P. Parker, Motive Power Superintendent; G. C. Gold, Assistant Mechanical & Electrical Engineer; M. B. Thomas, Public Relations & Publicity Officer.

British Transport Commission Police: Colonel N. McK. Jesper, Chief of Police, London Area.

**NEW TRANSPORT FLAG.**—A new badge designed for the Ministry of Transport showing its interest in land and sea transport has been approved by the King. A blue ensign, incorporating the new badge, will be flown by all ships and official launches for which the Ministry is responsible.

**CHEAP DAY TICKETS IN THE SCARBOROUGH AREA.**—New summer tickets available by any train after 9.30 a.m. were introduced in the Scarborough area of the North Eastern Region on July 9. Saving in fares with these tickets will be as much as 1s. 6d. over short journeys such as Scarborough-Bridlington and Scarborough-Whitby.

## British Railways New Works Programme for Speeding Freight Traffic

*Railway for Nottingham coalfield: modernisation of goods stations: extensions to marshalling facilities: improved signalling*

More than 150 large works schemes for the better working of freight traffic are in progress on British Railways or have recently been authorised and will be carried out as quickly as conditions of labour and materials will allow.

Among the schemes already authorised is the first stage of an extensive programme to meet the changed transport requirements arising from the development of the Fife-shire and Clackmannanshire coalfields. Because the coal is now required to be moved more by rail to the West of Scotland instead of to nearby East Coast ports, major extensions of siding and marshalling facilities, together with additional motive power and signalling equipment, are to be provided at Oakley and Kelty. The additional rail facilities will be kept in step with mining expansion by collaboration with the N.C.B.

### New Lines and Sidings

An entirely new railway line 7 miles long is being constructed in Nottinghamshire to convey coal from the new N.C.B. colliery at Calverton to the existing railway at Hucknall. The line will be double track and will be capable of carrying the total output of the colliery of over 1,000,000 tons a year.

The provision of 15 miles of additional sidings, the diversion of running lines, and the construction of five new signalboxes have been undertaken at Port Talbot, Glamorgan, to cater for additional traffic resulting from the expansion of the works of the Steel Company of Wales Limited. The cost of the railway works alone is about £1,100,000.

Work is in progress on the doubling of the East Usk branch 3 miles long at Newport, the provision of loops and sidings, and two new signalboxes. The branch serves various factories, and the new works are necessary to enable over 2,000,000 tons of coal a year to be conveyed to the B.E.A. power station now under construction near the Usk mouth end of the branch, and to carry increased traffic to and from other industrial works served by the branch.

Additional sidings, railhead depots, and facilities for coal, iron, steel or power house traffic are to be provided at Basford (Notts.), Rolleston (Notts.), Liverpool (Brunswick and Sandon Docks), Scunthorpe (Lincs.), Brentford (Middlesex), and other places.

The modernisation, enlargement, or re-equipment of goods depots at Bricklayers Arms (South London) (new bonded warehouse), Liverpool (Huskisson), Darlington Bank Top, Crewe, and Aberdeen (Guild Street), is in hand. In connection with the mechanisation of cartage services a new road motor depot and garage is to be provided at St. Pancras.

### Passenger Stations

Passenger station improvements are being undertaken at Liverpool Lime Street, including modernisation of the concourse; Carpenders Park, which is to have a completely new station; Seaburn (Co. Durham); Blackpool (roofing over excursion concourse); Partick (Glasgow) (reconstruction); Forres (reconstruction); Derby (reconstruction of roof and other improvements); Preston, and Potters Bar.

Apart from the economies which will accrue from the introduction of standard locomotives various improvements costing over £600,000 in the aggregate have been authorised to improve non-standard but comparatively modern locomotives in various ways so as to make them more efficient and cheaper to operate and maintain.

Facilities for the quicker and more economical servicing of locomotives are being provided at a number of power depots, including Crewe North, Old Oak Common (West London), Cricklewood, Nine Elms (South East London), Bescot, Rose Grove (Lancashire), Northwich, Wigan (Springs Branch), Dunfermline, Southall (Middlesex), and Ipswich.

Nearly £100,000 is being spent on the provision of the most modern equipment for renewing the permanent way more quickly and more cheaply than by purely manual methods, including track relaying with power-operated tools, special lighting, mobile trollies, and other specialist equipment.

### Signalling

Signalling improvements, including the provision of colour-light signals, planned to give quicker and safer working of trains, are to be carried out on a number of sections of line, including the Glasgow Central Low Level Line; between Levenshulme and Stockport (on a particularly busy section of the Manchester-Crewe main line); between Denham and High Wycombe (Bucks.); and at Carlisle, Stafford, St. Pancras, Hull (West Parade), Scarborough, Dundee (Tay Bridge), and many other places.

Telephone installations are being improved at Euston, Manchester Victoria, and over a large part of the Southern Region.

## Staff & Labour Matters

### Railway Staff Shortages

It is understood that a measure of agreement has been reached between the Railway Executive and the N.U.R. and the T.S.S.A. on several suggestions aimed at relieving the serious shortage of railway manpower in areas of acute difficulty.

The suggestions are as follow:—

(a) Employment of Italian labour in the Civil Engineering and Signal & Telecommunications Departments.

(b) Principal grades of wages staff, such as guards, signalmen, and shunters, in those areas worst affected are to be asked to relinquish voluntarily a week of their annual leave this year. They will receive normal wages for the week they work plus payment for the week's holiday which they forgo.

(c) Principal grades in "black" areas, i.e., areas of acute shortage, will also be asked to volunteer to work 4 hr. additional overtime a week, making 48 hr. in all, with enhanced payment for the additional time so worked. This arrangement will operate for a period of twelve months.

It is also proposed to make full use of the agreement whereby staff (other than footplate staff) may be retained in the service beyond the age of 65, on the understanding that the compensatory promotion arrangements continue to apply.

To facilitate transfer of staff from one area to another, improved lodging allowances for staff have been agreed.

### Deferment of National Service

The A.S.L.E.F. regards the deferment of railway staff from national service as of first priority, and the step most likely to ease the situation. The Society considers that this should be done first, and then it will be possible to consider the other proposals submitted by the Railway Executive. It is believed the Society may itself take steps to bring the matter to the attention of the Minister of Labour in the near future. In the meantime, footplate staff will not participate in forgoing a week's holiday or working 4 hr. extra a week.

## Contracts & Tenders

An order has been placed with the Butterley Co. Ltd. by the Great Northern Railway (Ireland) for the supply of twelve containers of three-tons capacity. The containers are to be of wooden construction with steel bracings and gussets, pressed-steel ends and end doors, with a canvas covered roof.

Matisa Equipment Limited has obtained a contract for ballast cleaning and clay subsoil excavation from the Railway Executive and for that purpose has brought over from Switzerland a new Matisa ballast cleaner, made by Materiel Industriel S.A. Lausanne.

The Peruvian Corporation has placed a further order with Beyer, Peacock & Co. Ltd. for 15 of its standard 2-8-0 type locomotives for the Central and Southern systems. Also the Cerro de Pasco Copper Corporation of Peru has ordered two of the same type.

Pyrates Co. Ltd. has placed an order with the Gregg Car Co. Ltd., Belgium, for 20 hopper-bottom ore-carrying wagons.

The New Zealand Government Railways have recently placed a contract with Cowans, Sheldon & Co. Ltd., for six 75-ft. turntables. Two of the turntables will be installed at Auckland, Wellington, and Lyttelton.

The Argentine Ministry of Transport has placed a contract with Leyland Motors Limited for 750 buses of underfloor-engine type. The order, which is worth nearly £4,000,000, is the largest single export order obtained by Leyland Motors and exceeds in size and value the \$10,000,000 contract for 620 buses received from Cuba last July. Most of the buses will go to Buenos Aires to replace obsolete buses taken out of service.

Of the total of 750 vehicles, 450 will have Royal Tiger underfloor-engine chassis, and 300 will be Olympic chassisless buses, which incorporate Leyland running units with bodies built by Metropolitan-Cammell-Weymann Motor Bodies Limited. The body-building programme for the Royal Tiger chassis has been divided so that Metropolitan-Cammell-Weymann Motor Bodies Limited will produce 200 bodies and Saunders Roe (Anglesey) Limited will build 100 bodies; the remaining 150 chassis will be shipped direct to the Argentine, where their bodies will be built locally.

The closing date of the Indian Railway Board call for tenders under the 1952-53 locomotive, carriage and wagon programme, which was referred to in our



July 6 issue, has been extended to September 7, and the visit to London by the Chairman of the Railway Board has been postponed.

The South African Railways recently issued a call for tenders for the following locomotives:—

25 "GM" Class 4-8-2 + 2-8-4 Garratt steam locomotives, with permanently attached eight-wheel torpedo tank. They are to have a 15-ton axleload and a total weight of 184 tons (with an extra 50 tons for the tank wagon); the closing date is August 30.

25 "GO" Class 4-8-2 + 2-8-4 Garratt steam locomotives, with permanently attached eight-wheel torpedo tank. The locomotives are to have a 13-ton 15-cwt. axleload and a total weight of 171 tons (with an extra 50 tons for the tank wagon); the closing date is September 27.

35 Class "5E" electric locomotives, Bo-Bo type. The tender closes on October 25.

Two earlier tenders which closed in June were for 25 "S1" class 0-8-0 steam locomotives and 40 to 120 "25" class 4-8-4 steam locomotives.

A report from the United Kingdom Trade Commissioner at Melbourne, recently quoted by the Board of Trade Special Register Information Service, states that the Tasmanian Government is to carry out modernisation of railway rolling stock, permanent way, and structures, and improve train working and signalling. The Transport Department's programme includes:—

Purchase of 56 locomotives, £2,250,000.

Carriage & wagon replacements, £900,000.

Improvements for way & works, £1,000,000, comprising: relaying sections of main track with Australian standard 80-lb. rail, lengthening crossing loops, and extending stations and marshalling yards; new workshops being built at Launceston, bulk oil storage at Hobart, new amenities buildings at Hobart and Launceston.

Interested United Kingdom manufacturers should send details of their equipment to the Secretary of the Tasmanian Railways.

## Notes and News

**Senior Draughtsman (Civil Engineering) Required.**—A senior draughtsman (civil engineering) is required by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. See Official Notices on page 83.

**Architectural Awards to London Transport.**—Architectural awards have been made by the Council for Architecture, Town Planning & Building Research of the Festival of Britain, to the London Transport Executive for the designs of White City Station (Central Line) and Newbury Park bus station.

**Accident Near Huntingdon.**—On July 14 the 3.45 p.m. "West Riding" express from Kings Cross to Leeds caught fire between Huntingdon and Stukeley, Eastern Region, and the first four coaches were burned out. Nine persons were detained in hospital and a further twelve received first-aid at the scene of the accident.

**India Bans Strikes.**—The President of India has promulgated a decree empowering the Government to prohibit strikes in essential services. The order was designed to prevent the first strike which independent India has had to face and threatens to paralyse all Indian railways on August 27. The strike was decided on at a meeting of

the General Council of the 300,000-strong All-India Railwaymen's Federation at Kharagpur on July 6 to enforce a demand for increased allowances.

**Recruitment in Britain of Railwaymen for Australia.**—Officials of the New South Wales Government are to visit the United Kingdom and certain European countries to recruit 8,000 men in Britain and Europe for the State Railway and Road Transport Departments. The railways are estimated to be 6,500 men and road transport 1,600 men short at present.

**British Railways Coal and Steel Carrying.**—During the weekend to July 16, British Railways cleared 202,300 tons of coal from deep-mined pits and open-cast sites, making a total of 2,889,810 tons for the week. The latest figures for iron and steel show that 185,030 tons were conveyed during the week ended July 7, from the principal steelworks.

**Hopper Wagons for New Types of Traffic.**—British Railways are to build 32 covered hopper wagons of 25-ton capacity for the bulk conveyance of catalyst and sodium tripolysulphate. These are new types of traffic. Catalyst is used in converting crude oil into a wide range of petroleum products and sodium tripolysulphate is used in the manufacture of synthetic soaps. All the wagons will be constructed in the British Railways works at Derby.

**Luncheon to Railway Mayors.**—This year seven members of British Railways, Eastern Region, staff are occupying Mayoral positions and on June 25 Mr. C. K. Bird, Chief Regional Officer, Eastern Region, took the opportunity of meeting those members of his staff who have been so honoured, at a luncheon given at the Great Eastern Hotel, Liverpool Street. Mr. Bird, in a short speech which followed the luncheon, expressed his pleasure at being able to meet those who were continuing the fine record established by railwaymen over a long period, in taking an active and

responsible part in local government. Each of the Mayors responded. The guests and Officers of the Eastern Region shown in the accompanying illustration are:—

*Back row (left to right):* Messrs. J. P. Ree, Mayor of Boston; A. R. Dunbar, Divisional Operating Superintendent (Eastern); T. R. Hawkes, Accountant, Eastern & North Eastern Regions; A. L. Crewe, General Assistant to Chief Regional Officer; W. H. Brind, Mayor of Hammersmith; M. B. Thomas, Public Relations & Publicity Officer; C. S. McLeod, Assistant Regional Staff Officer; H. H. Halliday, Regional Staff Officer; W. H. Amy, Mayor of Lowestoft; L. P. Parker, Motive Power Superintendent; K. A. E. Gregg, Deputy Mayor of Tottenham. *Front row:* Messrs. A. J. Colthorpe, Mayor of Ipswich; C. K. Bird; H. J. Slater, Mayor of Great Yarmouth.

**Glyn, Mills & Company.**—An abridged statement of assets and liabilities of Glyn, Mills & Company at June 30, 1951, shows that total assets declined £10,331,524 to £73,283,783, compared with a year ago. Deposits were down from £75,106,216 to £62,308,121 and engagements on account of customers from £4,649,148 to £2,665,754. Acceptances and confirmed credits advanced £4,438,477 to £6,135,571. Coin, notes, etc., totalled £4,436,030, against £5,939,448 and balances with other banks were £2,743,003 against £3,767,702. Money at call fell from £19,015,000 to £8,011,000 and bills discounted from £6,560,283 to £2,411,413. Investments, amounted to £20,372,056, against £21,503,016.

**Reservists Summer Camp at Longmoor.**—A successful summer camp was held from June 16-30 at the Transportation Centre, Longmoor, by the 80 Railway Workshop Regiment, 155 Railway Workshop Squadron, and 156 Engineer Stores Squadron, Supplementary Reserve. Royal Engineers. Apart from the Supplementary Reservists the 155 Workshop Squadron included a large number of "Z" Reservists. The first week was devoted to arms drill, musketry, and so on, terminating with a ceremonial parade inspected by the Representative Colonel Commandant, Royal En-



A group of Eastern Region officers and staff including Mr. C. K. Bird, Chief Regional Officer (centre, front row), on the occasion of the luncheon given at the Great Eastern Hotel, Liverpool Street, on June 25 for Eastern Region staff occupying Mayoral positions (see paragraph above)

## OFFICIAL NOTICES

## CROWN AGENTS FOR THE COLONIES

**DRAUGHTSMAN** experienced in steam or diesel locomotive work required by works in N.E. England. Permanent position to suitable man. Pension Scheme, etc. Apply Box 133, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**LEADING RAILWAY CARRIAGE DRAUGHTSMAN** required with general experience, especially of unit construction. Diesel Railcar experience very desirable. Apply Box 137, c/o *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**W?** by used or unserviceable Steel Files at good prices, in lots of 2 cwt. or more.—THOS. W. WARD LIMITED, R.S. Department, Albion Works, Sheffield.

**BOUND VOLUMES.**—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press Limited, 33, Tothill Street, London, S.W.1.

**INTERNATIONAL RAILWAY ASSOCIATIONS.** Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**SENIOR DRAUGHTSMAN** (Civil Engineering) required by the Nigerian Government Railway for one tour of 18 to 24 months in the first instance. Salary (including expatriation pay) according to qualifications and experience between £985 and £1,230 a year, plus temporary increase between £73 and £93 a year. Outfit allowance £60. Free passages for officer and wife and assistance towards the cost of children's passages or their maintenance in this country. Liberal leave on full salary. Gratuity at the rate of £100 to £150 a year on satisfactory completion of service. Candidates must have had at least five years' experience in the drawing office of a Railway Civil Engineering Department (or Consulting Engineers or Contractors with practice in railway work). Knowledge of design and construction details of civil engineering structures and railway track work is required, including ability to take off quantities, prepare estimates and draft general specifications. Apply at once by letter, stating age, full names in block letters and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M.17417.A on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

**GENTLEMAN**, Oxford Degree Maths., returning to England, family reasons, at present employed by Dominion Railway as Technical Assistant in Chief Civil Engineer's Office, seeks position. Experience in drawing office and with Hallade, Proksima, etc. Present salary £600, but interesting and varied work first consideration. Correspondence in R.G. Age 38.—Box 154, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

**JUNIOR Traffic Officials** with railway traffic apprenticeship experience. Age about 25, single, required for service on railways in Peru and Bolivia. Apply to the Secretary of THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

**THE PERUVIAN CORPORATION LIMITED.**—Assistant to Chief of Traction, Peruvian Railways; age 26/35. Qualifications: Apprenticeship with steam locomotive builders or main-line railway workshops, main experience with a locomotive running department. Knowledge of diesel power an asset. Higher National Certificate for Mechanical Engineering or graduate of Institute of Mechanical Engineers. A knowledge of Spanish an advantage. Apply to the Secretary of THE PERUVIAN CORPORATION LIMITED, 144, Leadenhall Street, London, E.C.3.

gineers, General Sir Charles King, who expressed his appreciation of the smart turnout after only a week in camp. During the second week the workshop troops were engaged on locomotive shop and shed repairs, and machine shop and foundry work, while a large detachment undertook wagon repairs. The Stores Squadron was engaged on an exercise involving the handling of transportation stores under operational conditions. The camp was under the command of Lt.-Colonel K. R. M. Cameron and the squadrons were commanded respectively by Major J. Sinclair (155) and Major T. H. Hobson (156).

**Passenger Fare Increases.**—On Tuesday the Transport Tribunal held a preliminary hearing in London to decide the eligibility of objectors to the draft scheme put forward by the British Transport Commission earlier this year for an increase in passenger fares. There are 203 objectors to the scheme.

**John Wright & Sons (Veneers) Ltd. Annual Outing.**—For the 57th year John Wright & Sons (Veneers) Ltd. held a successful outing at Margate on July 7. The directors entertained over 400 members of the works to lunch. Mr. T. J. Holt, a 71-year-old employee, proposed the toast of the firm, which was responded to by the Chairman, Mr. L. C. W. Jenkins, who said that as in previous years a holiday bonus would be paid to all employees.

**Floods in Kansas and Missouri, U.S.A.**—As a result of the floods in Kansas and Western Missouri, U.S.A., all cross-country travel by road or railway has been brought to a standstill in Kansas and there has been no movement in the yards at Kansas City Union Station. Two of the four bridges crossing the Kansas river at Topeka had been washed away by July 13, and on that day the Atchison, Topeka & Santa Fe Railway bridge, on which ten locomotives had been stationed to give added strength, collapsed and plunged several locomotives into the river. On July 15 it was reported that water was covering railway lines in certain parts of Kansas City to a depth of 20 ft.

**United Railways of the Havana.**—On July 13, the Foreign Office published this text of a Note which was delivered to the Cuban Minister of State by the British Ambassador on July 4, on the position of the British owned United Railways of Havana. Dr. Carlos Prio Socarris, the President of Cuba, recently stated that

he favoured nationalisation of the railways by the middle of September, and the Note expresses satisfaction that the President reaffirmed, on May 24, the readiness of his Government to guarantee existing investments of foreign capital and disclaimed any intention of damaging the legitimate interests of foreign companies established in Cuba. The British Government, it says, has noted the willingness of the Cuban Government to exchange views with interested parties on the problem of the railway services, and therefore hopes that the Cuban Government will appoint as soon as possible a representative empowered to discuss the existing difficulties with a representative of the company and H.M. Ambassador and to recommend a satisfactory settlement.

**L.M.R. Prizes for Best-Kept Lengths.**—Every winning inspector in each of the 15 districts of the London Midland Region of British Railways is to be presented with a challenge cup, while each of the winning gangers and his men will receive a cash prize, for having the best-kept length of track. The first presentation took place at Wigan on July 13, when Mr. J. Taylor Thompson, Civil Engineer, L.M.R., presented prizes to the winning gangs from Manchester, Liverpool, and Blackburn.

**Thos. Cook & Son to Form Movement Control Group.**—A new Movement Control Group of the Royal Engineers Supplementary Reserve is to be formed, recruited entirely from the staff of Thos. Cook & Son Limited and commanded by Major R. A. Smyrk, R.E., Traffic Manager of the firm. Annual training takes place on November 10-24. The first important link of Thos. Cook & Son with the army was in 1884, when the firm made the transport arrangements for the expedition to Khartoum for the relief of General Gordon. Some 18,000 troops and 200,000 tons of stores were carried. Afterwards Lord Wolseley wrote to the Company: "No one else could have helped us as you did."

**German Railway Legislation.**—The West German Bundestag has passed a new law governing the status of the Federal Railways, to come into force on August 1. The law declares the property of the railways with all assets, titles and liabilities a "special property" of the Federal Republic. The Federal Transport Minister has authority to fix control. All railway employees are Federal employees with all rights and titles of such employees. The

Governing Council appoints the Executive of four—chairman and three members; it will be composed of 20 members, five of them appointed by the Upper House, five by industry and commerce, five by the trade unions, and five by the Government.

**Agency for Paint Preserving Material.**—A rust suppressor and inhibitor made by the Walterisation Co. Ltd. and known as Foscode "R.S." is to be sold throughout the British Isles by Sissons Bros. & Co. Ltd. This firm has also acquired the rights to supply bulk quantities to industrial and other users in this country. Concessions are also held in certain territories overseas. Among the advantages claimed for Foscode are that it preserves the life of paints applied to surfaces treated by it and that it obviates the necessity for spending time and money in mechanically removing all traces of rust before painting.

**Margam Steelworks Officially Opened.**—Mr. Hugh Gaitskell, Chancellor of the Exchequer, on July 17, officially opened the new plant of the Steel Company of Wales Limited at Margam, Port Talbot. This is the largest mill of its kind in Europe, and it has a capacity of 1,250,000 tons of sheet metal and strip in a year. Mr. Gaitskell, speaking at the opening ceremony, said that what had been accomplished was symbolic of British achievements during the difficult years since the end of the war, and the decision to build the plant at Margam has been proved right. Mr. E. H. Lever, Chairman of the Steel Company of Wales Limited, replying, remarked that in the task set four British firms had got together with the intention of showing the way to economic recovery, and their ideas and resources were thrown into a common pool.

**Chinese Government Purchasing Commission.**—The report of the Chinese Government Purchasing Commission for the year ended December 31, 1950, states that Dr. Cheng Tien-Hsi ceased to be Chairman of the Commission on the termination of his mission as diplomatic representative of China in London after the British Government recognised the Central Peoples' Government of China on January 6, 1950. Until a new Chairman is appointed care is being exercised to keep intact the balance of the indemnity funds. Purchasing deliveries have practically ceased. The balance of an order for locomotive spares was completed during the year and shipment of these materials is awaiting the receipt of delivery instruc-

tions. The total indemnity funds held at the end of the year amounted to £299,737, and the total expenditure from indemnity funds since the Commission commenced to operate in April, 1931, is £5,736,567.

#### Higher Transport Wages in Canada.—

Some Canadian Brotherhood of Railway Employees and other transport workers may seek higher wages according to the union president, Mr. A. R. Mosher. He warned: "There is the possibility that some branches of our organisation which have contracts until next year will nevertheless look for some relief from the increased cost of living before that time, and conferences have already commenced among various groups on the action to be taken to keep wages abreast of higher costs."

#### Hackbridge & Hewitt Electric Co. Ltd.—

Increased production in the year to March 31 resulted in the group trading profits of the Hackbridge & Hewitt Electric Co. Ltd. rising by about £40,000 to £379,331. The combined net profit was £142,720, only £7,700 more than that for the previous year, which, however, included a non-recurring profit of £13,800. Ordinary dividends total 18 per cent., against 15 per cent., which, together with the preference dividend, will absorb £55,575, or under 40 per cent. of the available net profit. Output for the first three months of the current year is slightly higher than for the same period of 1950.

#### Railway Station for Glasgow Zoological Gardens.—

Mrs. T. F. Cameron, wife of the Chief Regional Officer, Scottish Region, formally opened a new station inside the grounds of the Glasgow Zoological Gardens on July 4. There is direct access to the main entrance of the gardens from the station which is situated between Mount Vernon and Uddingston West on the Shettleston-Hamilton line. Trains began calling at Calderpark on July 5 and the service is being operated on Sundays as well as on weekdays. Before construction of the new Calderpark Station could proceed it was necessary to regrade the line and to raise the height of the private road bridge over the railway. Both works were completed without disturbance to road or rail traffic.

#### Japanese Railway Rehabilitation Programme.—

It is reported that the Japanese railway authorities are planning expansion of the railway system which it is expected to complete by 1956, at the cost of 150,000 million yen. The main features of the plan are the construction of nearly 20,000 wagons and 2,000 coaches to replace obsolete and over-age stock, the replacement of 220,000 tons of rails and 11,000,000 sleepers on lines totalling over 20,000 miles; and the building of new lines in areas such as Hokkaido, Northern Myshu, and Elser, to further industrial development. To expedite this large-scale project, an increase in freight charges and passenger fares by 35 per cent. and 30 per cent. respectively, as from next autumn, is contemplated.

### Forthcoming Meetings

July 21 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, visit to Stuart Street Power Station, Manchester, British Electricity Authority, at 2.30 p.m.

July 28 (Sat.).—British Railways, Southern Region, Lecture & Debating Society, ramble over the Surrey Iron Railway.

## Railway Stock Market

International uncertainties have again kept stock market business in check, buyers remaining cautious, although on the other hand there was generally little selling reported. Despite the success of the £75,000,000 Gas stock issue British Funds lost earlier firmness and sentiment generally was affected by the implications of the June trade figures. The latter have emphasised the recent warning that much bigger efforts in export markets will be needed if adequate gold and dollar reserves are to be maintained.

The inference appears to be that, with larger supplies of materials going to the export industries and rearmament firms, shortages will be more marked at home and that the problem of rising prices will also become more acute. The City is also warning that Japanese and German competition in export markets will become much more pronounced next year. Also, it is feared that so far the home market has felt only to a very small extent the effects of the rearmament drive, and that next year only export trade and rearmament companies will be likely to earn higher profits.

With uncertainty tending to increase there has been a disposition to give rather more attention to some foreign railway stocks. Leopoldina stocks have attracted attention because current market prices are below pay-out levels. At the time of writing, the ordinary has strengthened to 10½, the preference has risen sharply to 27, and the 4 per cent. debentures to 95, while the 6½ per cent. debentures were 142. Leopoldina Terminal 5 per cent. debentures were 94½ and the ordinary units 1s. 3d.

United of Havana stocks were more active with the 1906 debentures changing hands around 19 after the latest developments which emphasise that the British Government is taking steps to help to secure fair treatment for the company following the Cuban Government nationalisation move.

Mr. Herbert Morrison has proposed a meeting between representatives of the Cuban Government and the company and our Ambassador at Havana, and the reply of the Cuban Government is awaited.

White Pass Yukon 5 per cent. debentures have advanced to 195 and the 6 per cent. debentures to 92 on revived rumours of a

pending scheme of reorganisation. Antofagasta stocks eased further on the reference by the Chairman to rising costs which it is feared may offset the improving traffics. The ordinary stock receded to 9½ and the preference to 60. Bolívar "C" debentures strengthened to 68 and La Guaira ordinary was steady at 87. Manila "A" debentures remained at 75 and the preference shares at 7s. 6d.

Mexican stocks were less firm with Mexican Central "A" bonds at 59. Nitrate Rails were 23s. 3d. and Taltal shares 17s. 9d. Brazil Rail bonds were 5½ and San Paulo 18s. units were easier at 14s. 9d.

Canadian Pacific moved back moderately to 52½, although the preference stock firmed up to 72½ and the debentures to 93½.

There was again little movement in road transport shares. Southdown were 98s. 9d., West Riding 51s., and Lancashire Transport 60s. 6d. B.E.T. deferred stock was £515 awaiting the annual meeting.

Engineering and kindred shares provided some firm features, with Guest Keen at 61s. 3d. on higher dividend talk, while Thornycroft at 126s. responded to the second interim dividend. Cammell Laird 5s. shares improved to 14s. while there was a sharp rise in Vickers to 54s. 3d. Rise in the latter was accompanied by hopes of an increase in the interim dividend and also by revived talk of a possible special payment arising from nationalisation compensation for English Steel. Nevertheless in the City it is thought that the question of a special payment may be held in abeyance in view of the prospect of a General Election this year. T. W. Ward have been steady at 73s. 6d. on market talk of a higher dividend although it is pointed out that the company has always followed a conservative policy and that earnings on the shares have been invariably much in excess of the dividends paid.

Shares of locomotive builders and engineers held up well, with Vulcans at 30s. 4½d., Beyer Peacock 33s. 9d., North British Locomotive 19s. 9d., Gloucester Wagon 17s. 1½d., and Wagon Repairs 15s. 7½d. Charles Roberts were 110s., Hurst Nelson 64s., and Birmingham Carriage 39s. 3d.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week			No. of week	Aggregate traffics to date	
			Total this year	Inc. or dec. compared with 1949/50			Total 1950/51	Increase or decrease
Canada & Con. America	Antofagasta ...	811	6.7.51	£ 132,850	+ £ 77,450	27	£ 1,110,170	+ £ 1,461,430
	Costa Rica ...	281	May, 1951	c566,653	- c467,774	47	c10,178,533	+ c694,685
	Dorada ...	70	May, 1951	35,183	- 6,442	21	177,217	+ 30,174
	Inter. Ctl. Amer. ...	794	May, 1951	\$1,274,448	+ \$190,877	22	\$5,898,678	+ \$16,121
	Paraguay Cent. ...	274	6.7.51	\$280,119	+ \$69,809	1	\$206,843	+ \$3,467
	Peru Corp. ...	1,050	June, 1951	\$8,533,000	+ \$1,650,000	52	\$92,754,000	+ \$21,536,942
	" (Bolívar Section) ...	66	June, 1951	Bs. 15,967,000	+ Bs. 11,900,000	52	Bs. 160,349,000	+ Bs. 49,599,336
	Salvador ...	100	May, 1951	c138,000	+ c31,000	48	c1,867,000	+ c136,000
	Taltal ...	154	June, 1951	\$1,675,315	+ \$259,456	52	\$20,544,647	+ \$2,959,409
	Canadian National	23,473	May, 1951	17,653,000	+ 1,809,000	22	82,112,000	+ 12,717,000
Various	Canadian Pacific	17,037	May, 1951	12,462,000	+ 1,788,000	22	56,846,000	+ 8,518,000
	Barsi Light*	167	May, 1951	32,460	+ 5,985	9	82,687	+ 22,425
	Egyptian Delta ...	607	10.4.51	17,513	- 267	4	17,513	- 267
	Gold Coast ...	536	May, 1951	262,770	+ 5,883	8	556,234	+ 70,167
	Mid. of W. Australia	277	Apr., 1951	41,036	+ 8,060	43	398,533	+ 89,681
	South Africa ...	13,347	23.6.51	1,846,068	+ 174,680	12	22,593,556	+ 3,735,568
	Victoria ...	4,744	Feb., 1951	1,739,845	- 87,111	35	—	—

\* Receipts are calculated at 1s. 6d. to the rupee    † Calculated at \$3 to £1  
‡ Receipts for six days in 1951-52, compared with seven days in 1950-1951